GUIDE TO AUTOMATIC IDENTIFICATION TECHNOLOGY (AIT) USE IN FORCE PROJECTION OPERATIONS

DEPLOYMENT PROCESS MODERNIZATION OFFICE

FORT EUSTIS, VA 23604
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PREFACE

This Guide presents recommended doctrine for the use of automatic identification technology (AIT) during force projection operations. AIT enhances force projection operations by automating the capture and transfer of deployment data to automated information systems, enabling real time or near real time status reporting of deploying forces. Using this information, deployment planners and the Joint Force Commander have the ability to manage and redirect assets to meet ever-changing operational requirements.

The Guide was developed as part of the Fort Eustis, Virginia Deployment Process Modernization Office (DPMO) initiative to develop AIT doctrine for force projection operations. The initiative involved creating an AIT Doctrine Workgroup consisting of representatives from the Army and DoD that are involved in AIT and Automated Information Systems (AIS) support for force projection operations. The Workgroup effort resulted in publication of this Guide to AIT Use in Force Projection Operations and the Force Projection/Exercise AIT Evaluation Guide. The Guide to AIT Use in Force Projection Operations contains the recommend AIT doctrine developed the by AIT workgroup. The DPMO is currently incorporating this doctrine into the family of 100-17 (Force Projection) Field Manuals. Both documents are available for viewing and download at http://www.deploy.eustis.army.mil/ait/default.htm.

This Guide is based on the projected AIT and automated information system (AIS) capabilities that will be fielded to users in the next five years. In some cases, AISs such as the Transportation Coordinators' Automated Information for Movements System II (TC-AIMS II) will be fielded incrementally to users over the next five years. Many AIT capabilities and data transfer requirements described are dependent upon planned TC-AIMS II capabilities being available to the user. If these capabilities are not available, AIT related tasks and responsibilities might not apply, although the node reporting requirements and timeliness goals are still valid.

The Deployment Process Modernization Office, Doctrine and Future Operations Branch welcomes your comments and recommendations for improving this Guide. Users can send comments and recommended changes to the Chief, Doctrine and Future Operations Branch, Bldg 705, Rm 229, Fort Eustis VA 23604. Telephone is DSN 927-6069 or commercial (757) 878-6069.

Unless otherwise stated, masculine nouns or pronouns do not refer exclusively to men.

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CHAPTER 1

CAPTURING FORCE PROJECTION/FORCE CLOSURE INFORMATION

> In every troop deployment this century, DoD has been plagued by a major difficulty – the inability to see assets as they flow into a theater of operations. This situation has lead to direct and significant degradation in operational readiness.
>
> Executive Summary:
> Joint Total Asset Visibility Strategic Plan (1999)

Force closure relies on well-executed force projection. The use of automatic identification technology (AIT) greatly enhances effective management of force projection. AIT is a suite of enabling technologies that supports the deployment community in executing force projection operations. When combined with web-enabled automated information systems (AISs), AIT assists in providing accurate and timely in-transit visibility (ITV) data. This data enables the joint force commander (JFC) and movement managers to effectively direct, or redirect the movement of equipment and forces in the deployment pipeline. AIT tools assist in providing the JFC information about which assets, (personnel, units, and materiel) are moving into and through the theater of operations. AIT data updates to web-enabled AISs provide a valuable source of information for the JFC on which units and equipment have arrived in the tactical assembly area (TAA) or other designated integration locations.

Today's Army will normally fight and operate in a Joint, and more often than not, a multinational environment. Missions can span the full spectrum of military actions from military operations other than war (MOOTW) to full mobilization in support of major theater wars. To meet its force projection requirement the Army must possess the capability to close a contingency Corps of 5 1/3 divisions plus Corps elements and sustainment cargo in 75 days. In the Army After Next (AAN) (2010-2025), three divisions must move anywhere in the world and be in the foxhole, ready to fight, in 25 days. Emerging doctrine describes placing a Brigade, ready to fight, on the ground anywhere in the world in 96 hours. AIT is an enabling tool that assists in making ITV a reality for force projection and force tracking management. Placed intelligently throughout the deployment pipeline, a robust AIT infrastructure can assist the JFC by enhancing ITV of units and materiel and improving operational procedures (business processes) in the force projection flow. Increased ITV can assist the JFC in managing the force closure timelines required for current and future operations.

SECTION I – INTRODUCTION

GENERAL

1-1. Army operations in Force XXI and the Army After Next will be fully integrated with those of joint, multinational, and non-governmental partners. The Army must be capable of rapidly mobilizing, deploying and integrating into these operations. The AIT challenge is to assist in collecting real-time and near-real-time status of deploying forces. After data collection, AIT must quickly pass the information to web-enabled AISs in time for deployment planners and the JFC to influence the movement as required. This visibility will provide the JFC timely data on when forces enter the theater, and when they arrive in tactical assembly areas or other designated locations. The JFC must receive this information in time to manage the deployment flow and reposition or redirect assets to meet ever-changing operational requirements.

1-2. Force projection operations normally occur in three distinct phases: fort to port, port to port, and port to foxhole; and can be opposed or unopposed. AIT actions that occur, or do not occur, in an earlier phase of the force projection operation will influence actions in follow-on phases. For example, if unit equipment is properly tagged with AIT data storage devices, and that data passed to web-enabled AISs, asset visibility during the port to foxhole phase may be possible. If unit equipment is not properly tagged before departure from the fort, or the data is not passed to web-enabled AISs, ITV will probably not occur during this phase. AIT use in all three phases must be designed to support the JFC force closure requirements. Force closure is the point at which the JFC determines that an adequate, combat ready force is available to implement the concept of operations.

1-3. For AIT to work effectively, data on all assets deploying in the force projection operation must be captured in AISs as early in the deployment process as possible. Appropriate AIT data storage media (military shipping labels [MSL], radio frequency tags [RFID], optical memory cards [OMC]), are produced and attached to deploying equipment. Suites of AIT data collection devices will capture information on the movement of these assets and report that data to web-enabled AISs from time of departure at the home station, until force integration in the theater of operations. The use of AIT enablers can increase the speed of the information and movement flow, and can effectively eliminate errors caused by manual input to AISs.

BACKGROUND

1-4. In Force XXI and the Army After Next, getting to the fight and then discovering what assets are available will not be sufficient. ITV and force tracking from fort to foxhole are critical JFC concerns and essential to successful force closure on future battlefields.

1-5. During Operation Desert Shield/Desert Storm, DoD shipped almost 40,000 containers to the theater in support of operations. In the rush to get to the war on time, equipment and containers were not properly marked. Half of the containers arriving in theater had to be taken out of the logistics pipeline and opened to determine content and ownership. At the conclusion of hostilities, 8,000 containers were still frustrated because theater logisticians had not yet opened them.

1-6. In Force XXI and the AAN, warfighting CINCs will not have the time or the assets to perform the item identification mission required during Desert Shield and Desert Storm. Theater logisticians and commanders must know what units and equipment are arriving to efficiently clear the ports and to quickly move assets to the TAA. For this in-theater visibility to occur, units, equipment, personnel, and sustainment cargo must be properly labeled and tagged with AIT data storage devices, and the information must be resident in web-enabled AISs before movements commence. For sustainment cargo, this means properly capturing cargo movements in AISs upon entry into the logistics pipeline. For personnel and unit equipment, the requirement is to accurately update and input deployment data into AISs before departure from home station or the Power Projection Platform/Power Support Platform (PPP/PSP). These actions must occur before movement to the ports of embarkation. Historically, once cargo enters the defense transportation system (DTS) there is insufficient time and resources available to label and tag the equipment with AIT data storage devices. Units and equipment will move, but without ITV. Properly labeling and tagging equipment at the beginning of the deployment process, and ensuring advanced data is available in the Global Transportation Network (GTN) are critical processes to the success of ITV tracking and reporting.

SECTION II – BUILDING THE FORCE

MOBILIZATION

1-7. Force projection operations routinely require reserve component (RC) participation. It is virtually impossible to conduct or sustain any large-scale or prolonged military operation without early mobilization of RC personnel and units. Under current doctrine, there are five levels of mobilization, ranging from a few soldiers or units to millions of soldiers being called to active duty. The duration of the call-up can be as little as 15 days or it can last the duration of the crisis plus six months.

1-8. Regardless of the size or duration of the mobilization, it is important that mobilizing RC forces and active component (AC) forces deploying to the theater of operations make proper use of AIT enabling tools. Accurate initial source data entered into AISs, coupled with the printing or writing of AIT data storage devices (bar code, radio frequency tags, Smart Cards) are key to successful ITV.

1-9. As units begin moving to mobilization stations or directly to the theater of operations, the transportation and logistics pipeline rapidly fills to capacity. Once maximum capacity is reached, delays in deployment will occur if advanced movement data is not resident in AISs, or the units do not have proper AIT labels and tags on their equipment. Units, installations, and depots failing to properly apply AIT data storage devices to equipment will cause delays in the deployment flow and will result in manual processing at downstream deployment nodes.

SECTION III – OPERATIONAL ENVIRONMENT

WAR – MOOTW

1-10. The national military strategy attempts to promote peace, deter aggression and failing that, fight and win our nation's wars. The Army can expect to operate in three basic environments: peacetime, conflict, and war. Peacetime operations can range from peace building operations to disaster relief and national assistance. Operations in a conflict environment can be both combat and non-combat, and range from Non-combatant Evacuation Operations (NEO), peacekeeping, and peace enforcement, to strikes and raids. Operations in war can range from low intensity conflict (LIC) through total war. During all these operations troops and equipment may deploy and redeploy from areas of operation. The duration of operations may range from a few weeks to years. AIT linked with AISs must effectively support the force projection process in all operating environments.

JOINT OPERATIONS

1-11. The Army will not operate alone. Joint Publication 1, *Doctrine for Personnel Support to Joint Operations*, and Joint Publication 3-0, *Doctrine for Joint Operations*, reiterate that future operations will be Joint in nature. Under the Wartime Executive Agency Requirement (WEAR) program, the Army assumes major mobilization, deployment, redeployment, and demobilization (MDRD) missions for other Services in joint operations. (The WEAR program is discussed in detail in Appendix D.) AIT and AISs must be capable of supporting these joint requirements and providing the necessary ITV and force tracking data associated with the WEAR requirement.

COALITION OPERATIONS

1-12. As the United States assists in redefining the structure of the geopolitical world many operations will involve coalition partners. Some of these operations will include long-standing partners in familiar alliance structures. In other missions, the Army can expect to operate side-by-side with new coalition partners. These coalition partners will likely be moving through the same strategic ports and traveling on the same inland transportation networks. Future Army AIT/AIS operations may be required to support coalition ITV and force tracking requirements. Many coalition partners may have their own automatic identification procedures, which may not be compatible with Army capabilities. As new technologies emerge, Army planners should consider options where coalition AIT and AISs can be integrated with and support Army requirements.

HOST NATION REQUIREMENTS

1-13. As the Army conducts OCONUS force projection missions, planners should consider automatic identification technology and AIS capabilities of the Host Nation (HN). OCONUS planners should also coordinate with USTRANSCOM where CINCTRANS has assumed port

AIT responsibilities. In well-developed countries, many of the ocean terminals and lines of communications (LOC) the Army will deploy/redeploy through are already equipped with ITV technologies supporting commercial customers. It may be possible for Army AIT and AISs to interface with existing networks to save time and resources. As a minimum, these HN networks can provide blueprints on where to locate the Army network, and they may provide redundancy in support of Army systems.

1-14. In other countries, there may be certain HN restrictions or infrastructure constraints placed on the operation limiting or precluding the use of select AIT devices. For example, many developed countries control their communications infrastructures and restrict the use of radio frequencies currently used in Army radio frequency (RF) AIT. Deployment planners must account for host nation restrictions and procedures. At the other end of the spectrum, the Army may operate in an austere environment lacking communication and power grids capable of supporting any operation, let alone automatic identification technology and supported AISs. In these situations, the Army must bring a full deployable AIT capability that includes power and communications support needed to capture ITV data. Deployable AIT capability kits are discussed in Chapter 2.

SUMMARY

1-15. Accurate source data must be captured at origin and used to populate AIS databases and AIT data storage devices. This source data must be passed to web-enabled AISs prior to movement. AIT readers/interrogators located throughout the deployment pipeline must capture the information from the data storage devices and provide that captured data to commanders and logisticians in time for them to make sound decisions. A principle objective of AIT is the rapid and accurate collection of force movement data and the timely passage of that information to web-enabled AISs that are linked to Joint logistics and command and control systems. These AIT/AIS capabilities can improve force closure times by providing logisticians and commanders throughout the force projection pipeline with accurate and timely data on all movements supporting operations. Without this visibility, it may be impossible for the Army to meet the demanding force closure requirements of the 21st century.

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Chapter 2

Automatic Identification Technology (AIT) – an Overview

The Army has been using AIT for several years to assist in the deployment and redeployment process. Users can expect AIT to change as computer and communication technologies advance. This chapter will present an overview of current AIT tools in use in the Army today. Appendix A provides a more detailed listing of current AIT devices with a brief discussion of emerging technologies and applications.

AIT use in force projection and force sustainment operations consists of a suite of enabling tools designed to provide commanders and deployment flow managers in-transit visibility of forces and material moving in the force projection pipeline. When integrated with automated information systems, AIT provides managers with timely in-transit visibility as well as "inside the box" item visibility. This visibility will allow managers to control the flow of forces and equipment and redirect that flow as necessary to meet changing tactical situations and force closure objectives.

The Logistics Integration Agency (LIA) is the Army executive agent for AIT. Army MACOMs should coordinate with LIA before procuring new AIT technologies or implementing any new AIT concepts. Coordination with LIA is critical to ensure that new capabilities are fully integrated into Army and DoD environments and do not operate as stand alone or stovepipe systems.

GENERAL

1-16. AIT is an enabling technology and must be fully integrated with web-enabled automated information systems to be an effective in-transit visibility tool. The use of AIT is a simple process in theory but complex in execution due to the large volume of participants and the interdependence of all organizations involved. The basic components for AIT use are: source data that populates AIT data storage devices, AIT data capture devices (interrogators, scanners, and readers), and source/movement data transfer to automated information systems. These parts work together in the AIT process as follows:

- An AIT data storage device (bar code, optical memory card, RFID tag) containing essential transportation and supply data is printed or created. The data storage device is then attached to a piece of equipment, or in the case of Smart Cards, issued to a soldier. The information on the AIT data storage device is also present in an automated information system. The data in the automated information system is passed to a web-enabled AIS that provides global asset/movement visibility.
- As the piece of equipment or soldier moves through the force projection pipeline, the data on the storage device is collected by AIT interrogators/readers that are strategically located

throughout the fort to foxhole deployment flow. These AIT interrogators/readers provide an efficient, rapid, and virtually error free capture and transfer of movement data.

- After collecting the data on the storage device, the interrogator, scanner, or reader passes the information to a host automated information system. The host automated information system passes the data to a web-enabled worldwide information system that provides near real-time in-transit visibility and force tracking data to the logistics and warfighting communities.

All three steps must be accomplished in order for AIT to effectively support ITV of force projection operations. AIT by itself is not the solution for achieving in-transit visibility throughout the deployment and redeployment process. When combined with automated information systems and re-engineered operational procedures (business processes), the AIT suite of capabilities significantly improve the accuracy and speed of ITV reporting. These capabilities can provide detailed, accurate, and timely information about the location of units and sustainment cargo as they move from fort to foxhole and back.

AIT TOOLS

The suite of AIT data storage devices used throughout the force projection process include: linear bar codes, two dimensional (2D) bar codes, optical memory cards (OMCs), Smart Cards, and radio frequency identification (RFID) tags. Also available, but not currently used by the Army in force projection operations are contact memory buttons (CMBs). Each AIT device offers unique capabilities. The command(s) designated to operate/support each node in the deployment flow is (are) responsible for knowing the capability of these AIT devices and for using the AIT devices that best enhance their deployment operational procedures. Overlaying AIT onto existing operational procedures is often not sufficient to maximize AIT capabilities. To attain true efficiencies operational procedures may require complete reengineering. Commands/agencies responsible for operating specific deployment nodes must also assess the impact of their AIT operational procedures with the operational procedures of follow-on nodes to ensure they are compatible and supporting. Listed below is a brief description of each AIT data storage device used within DoD. A more detailed review of AIT data storage devices and hardware is available in Appendix A.

Bar Codes

1-17. A bar code is a basic form of AIT used by the military since the early 1980s. Bar codes are used as the initial means to collect data about items. The item identification data need only be keyed into an automated information system once to produce a bar code. From this point on, the identification data is available by scanning the bar code label with a bar code reader. A bar code is an array of parallel, narrow, rectangular bars and spaces that represent a group of characters in a particular symbology. Currently bar codes are applied on labels that are placed on paper, plastic, ceramic, and metal by a variety of marking techniques. A reader scans the bar code, decodes it, and transfers data to a host computer. Multiple bar codes can be placed on a single label, each representing a different data field. Bar codes are best used to capture initial source data and should be attached to all items, equipment, and shipments moving in a force

projection operation. The deploying command should use common sense in deciding what equipment will be bar coded. All items that can move as an individual shipment with a unique transportation control number (TCN) should have a Military Shipping Label (with bar codes) produced. Sets, Kits, and Outfits should have a bar code label but it is not necessary to label every item within the Set, Kit, or Outfit. Printing, labeling and scanning bar codes is manpower intensive and time consuming in the force projection process. Bar codes need to be printed and affixed to necessary equipment as early in the deployment/redeployment as possible. There are two basic types of bar codes, linear and two-dimensional.

- Linear bar codes – A linear bar code is normally limited to about 20 characters. Linear bar codes are used to represent an essential data element that serves as a point of reference in a central database. Scanning the linear bar code permits automated access to the information in the database. There are more then 250 distinct bar code symbologies available on the commercial market today. DoD has selected Code 39 as the standard linear symbology for all DoD organizations. Code 39, also known as Code 3 of 9, is a variable length, alphanumeric symbology extensively used throughout the DoD. Linear bar codes provide item identification and document control information for individual items and shipments. Linear bar codes can be written to once and read multiple times.
- Two dimensional (2D) bar codes – 2D bar codes have a greater data storage capacity than linear bar codes. 2D bar codes include both stacked and matrix codes. Current 2D bar codes can store up to 1,850 characters in a single symbol. 2D bar codes can be written to once and read multiple times. The 2D bar code also has a damage correction capability not present in linear bar codes. There is a redundant data capability on the 2D bar code to allow for successful reading even after the label is damaged. The amount of data written to the 2D bar code can affect this capability (the more item data that is written on the 2D bar code, the less room there is for redundant data). DoD initiated use of 2D bar codes during the 1998 AIT Operational Prototype and confirmed its utility. The DoD 2D bar code standard is the Portable Data File 417 (PDF-417) format. The DoD AIT Implementation Plan requires that all DoD logistics nodes develop the capability to read and write to both linear and 2D bar codes. In force projection operations the 2D bar code will often be seen on the military shipping label. TC-AIMS II will have the capability to produce and read 2D bar codes.

Optical Memory Cards

1-18. Optical memory cards use the same laser technology as audio CDs. Currently, OMCs are credit card sized and shaped. OMCs can have data written to them in a sequential order on many occasions, until all available memory is filled. Users write data on the card with a narrowly focused, high-intensity beam (e.g. a laser). A low-power light beam reads the pits created during the writing process. The OMC currently has a 2.4-megabyte data capacity. The DoD AIT Implementation Plan recognizes the Drexler European Licensees Associations (DELA) standard for the OMC. Current OMC limitations include the inability to modify data on the card. Once data is written, it cannot be changed. Data updates require the entire file to be rewritten to another portion of the card. OMCs are best used to enhance the speed and accuracy of processing large volume shipments. For example, as items are stuffed into a container an operator scans the attached bar codes to capture initial source data. Once the container is loaded all the scanned data is written to the OMC using the Automated Manifest System (AMS) and the

OMC is sealed with the paper documentation inside the container. Using the same source data, an operator writes the appropriate supply and transportation data to an RFID tag that is attached to the outside of the container. The same data is then passed to an automated information system that updates GTN and Joint Total Asset Visibility (JTAV). The RFID tag is interrogated at various nodes in the deployment pipeline to provide ITV data on the container movement. (See Paragraph 2.8 below). At destination, the container is opened and the OMC is scanned to provide automatic receipt data collection. The Army uses optical memory cards at major supply depots with AMS. As items for a specific location are placed in multipacks, the supply accountability bar codes are scanned. The data and associated transportation information is placed on the OMC which serves as a packing list for that multipack. As multipacks are placed on an air pallet or loaded into a container, another OMC, and usually an RFID tag, are produced to act as a consolidated packing list for all the pallet/container items.

Smart Cards

1-19. Smart Cards (also known as Common Access Cards [CAC]) look similar to a standard credit card or drivers license. Where they differ is in the Smart Card's ability to store information on an integrated circuit chip (ICC) containing a microprocessor located within the card. In addition to the ICC, a Smart Card can contain other types of media like magnetic stripe and bar code. This allows the Smart Card to be interrogated and written to by different hardware systems and bar code applications. Smart Cards are designed to hold certain essential data elements that can be updated as required to keep the card current. Smart Cards also have the capability to keep data secure by incorporating several layers of security such as Personal Identification Numbers (PIN), passwords, and encrypted data. For additional security, Smart Cards can include an individual's picture and thumb print identification technology. Smart Card data can be read and written to multiple times. The cards are best used in the force projection process to track the movement of personnel and to speed up Soldier Readiness Processing (SRP) and manifesting. For example, in Operation Cobra Gold '98 and Positive Force '99, Smart Cards were used for personnel tracking, access control, manifesting, joint reception, and as an in-theater database for the Joint Task Force Commander. In most cases, support soldiers must be present to scan the Smart Card and ensure data transfer to an automated information system. However, it is possible to build AIT readers where the deploying soldier swipes the Smart Card through an unattended reader and then boards or disembarks strategic or theater transportation. Smart Cards can also be used to support refugee and enemy prisoner of war (POW) administration or noncombatant evacuation operations.

Contact Memory Button (CMB)

1-20. Currently the Army does not use CMBs in force projection operations but the technology is available and should be considered an important part of the available suite of AIT devices. CMBs are small stainless steel containers with a computer microchip sealed inside. Data on the microchip is read by touching a probe to the outside container. There are multiple read/write options with CMBs. The CMB can be set for write once and read many times, or read and write multiple times to allow updates. The buttons are sealed to protect against moisture and temperature changes so they can operate effectively in temperatures ranging from below zero to 200 degrees F. The US Navy currently uses CMB technology to maintain digital logbooks for

spare parts. The Army maintenance community is exploring a similar use for all Army equipment and LIA is testing CMB use in other areas. Army logisticians working in force projection operations need to be aware of CMB technology as they may encounter CMBs during joint and future operations.

Radio Frequency Identification

1-21. Radio frequency identification combines the features of a portable data collection device and a two–way radio. RFID data storage devices are called tags. These identification tags contain information that can range from a permanent ID number programmed into the tag, to a variable 128-kilobyte data field programmed by a controller using RF energy. Information can be written to tags using three different devices: a fixed interrogator, a tag docking station, and a hand held interrogator (HHI). The HHI is considered the least desirable option. Past operations have shown a high degree of RFID tag data written by HHIs is not transferred to AIS for asset and ITV visibility. After the initial data is written to the RFID tag, the data is passed from the host AIS to the regional ITV server. The tag then works in conjunction with RFID interrogators to assist in in-transit visibility and force tracking data capture. An interrogator and a tag use RF energy to communicate with each other. The interrogator sends out a RF signal that "wakes up" the tag and the tag transmits information back to the interrogator. In addition to getting data from the tag, the interrogator can also write additional information to the tag, to update the tag data to reflect changes. After the data transfer from the tag to the interrogator, the RFID interrogator communicates with a host computer which in-turn passes the data to the appropriate CONUS/regional ITV server updating the status of the movement or shipment. With RF technology, the JFC and CINCs are provided the ability to monitor force projection movements without direct human intervention.

1-22. At the soldier on the ground level, the RFID tag is the key to having "inside the box" asset visibility. Using a fixed or HHI the soldier can view the contents of the container/pallet/vehicle without having to open or unload them. This "hands-off" visibility is what sets RFID tags apart from other AIT devices that all require some form of 'hands-on' intervention to capture the asset data. A major limitation of RF technology is a worldwide standard frequency. Current RF equipment employed by the Army and DoD operates on frequencies that may be restricted or not available in many of the countries where Army units can expect to deploy. Approval for the use of RFID frequencies from the host nation can be a cumbersome process. Approval must be granted before using RFID devices. This limitation must be considered when planning any deployment/redeployment operation. Today the Army uses RFID technology in contingency operations and for many routine sustainment missions.

Satellite Tracking Systems

1-23. Satellite tracking systems provide the capability to track the exact location of vehicles, convoys, or individual high-priority shipments. Satellite tracking uses a cellular or satellite-based transmitter or transceiver unit to communicate positional information, encoded text, and emergency messages from in-transit conveyances. Transceiver-based technologies also permit communications from a ground station to the in-transit receiver. With this technology, the JFC/JTF and CINCs will have real time data on the movement of units and convoys, and the

ability to communicate and redirect movements as necessary. The Army is currently using multiple satellite tracking systems and developing other systems for use in force projection operations.

- Defense Transportation Tracking System – DTTS ensures the safe and secure movement of all DoD sensitive conventional arms, ammunition, and explosives within CONUS. Other shipments can employ DTTS with advanced planning and coordination. DTTS uses satellite technology and around-the-clock staff oversight to support in-transit visibility requirements. Periodic satellite positioning and other messages, coded or text, are transmitted to a tracking station from a cab mounted transponder. In-transit visibility data is provided to GTN.
- Defense Tracking, Reporting, and Control System – DTRACS is basically the same as DTTS however, it is used in OCONUS locations. (OmniTRACS is a very similar system used in Korea.) DTRACS has five components – a subscriber unit, a satellite, an earth station, a network control center, and logistics managers. A subscriber unit is installed on the transportation platform being tracked. The subscriber unit can be queried by satellite giving the transponder location as determined by Global Positioning System (GPS), or triangulation. The satellite passes the information to the earth station, which is connected to the network control center. The control center stores information in the DTRACS server. Logistics managers access the DTRACS server to receive information from subscriber units and to send information to the subscriber unit. DTRACS monitors the transportation platform, not the associated cargo. For in-transit visibility reporting to work with DTRACS, the subscriber operator must key in essential data fields relating to the equipment being moved, such as RFID tag numbers or TCNs. Without this operator entry, in-transit visibility of moving equipment is not possible.
- Movement Tracking System – MTS will consist of long-range digital communications, GPS, and a computer capability. The current basis of issue plan is for all common-user land transportation (CULT) and selected combat support, and combat service support tactical wheeled vehicles and watercraft, to be fitted with the movement tracking system mobile unit. MTS control stations will be located at distribution management centers, movement control headquarters, distribution terminals, and at the headquarters of mode operators. MTS will provide distribution systems the capability to:
    - Track the location of vehicles and communicate with vehicle operators.
    - Provide real-time in-transit visibility of movements within a theater. This capability requires that the vehicle operator key in certain data fields defining the cargo they are carrying. Without this entry, MTS will only track the distribution platform, i.e., the truck or watercraft, and not the associated cargo.
    - Redirect movements based on changes to force projection or battlefield requirements.

Chapter 3

AIT EMPLOYMENT IN FORCE PROJECTION OPERATIONS

The purpose of force projection operations is mission accomplishment, not merely entry into the area of operations. Planning the use of AIT in support of force projection operations must focus on the overall objective of meeting the supported CINCs force closure requirements while providing timely AIT and force tracking data. AIT and associated automated information systems must be fully integrated from fort to foxhole to meet supported CINC or JTF force closure requirements and the AIT reporting requirements established by the Department of Defense.

SECTION I – THE AIT FORCE PROJECTION ENVIRONMENT

DOD AIT ENVIRONMENT

During force projection missions, the Army can expect to operate in a Joint and/or coalition environment. As discussed in chapter 2, there are numerous AIT devices available within DoD and the Army to support force projection missions. DoD recently established standards to control the use and procurement of AIT. In 1997 the AIT Task Force, working for the Deputy Under Secretary of Defense (Logistics)(DUSD[L]), developed the *Logistics Automatic Identification Technology Concept of Operations (DoD AIT CONOPS)*. The parameters in the DoD AIT CONOPS were validated, and in March 2000, *a DoD AIT Implementation Plan* was published. The operational basis of the implementation plan is a set of data timeliness reporting criteria, or targets for all military and commercial origin, in-transit, and receiving activities. These activities report arrival and departure of movements to the Global Transportation Network as well as other Joint and Army systems such as JTAV, the Global Command and Control System (GCCS), GCCS-Army (GCCS-A), Global Combat Support System (GCSS) and GCSS-Army (GCSS-A). AIT enabling tools support host automated information systems in meeting the following time standards when reporting data to GTN:

- Unit Strategic Movements – The arrival and departure of unit personnel and equipment at all nodes from origin to destination will be visible in GTN within 1 hour of the event.
- Sustainment airlift – The arrival and departure of sustainment air cargo at all nodes from origin to destination will be visible in GTN within 1 hour of the event.
- Sustainment sealift – The arrival and departure of sustainment ocean cargo at all nodes from origin to destination will be visible in GTN within 4 hours of the event.
- Intratheater and CONUS movements – The arrival and departure at all nodes of non-unit cargo originating and terminating in the theater or CONUS will be visible in GTN within 2 hours of the event.

The following table lists force projection node and activity ITV reporting requirements for both deployment and redeployment.

Table 3 – 1 ITV Reporting Requirements (Arrival/Departure)

Deployment	
Node/Activity	**Reporting Requirement Source**
Origin (Installation, PPP)	DoD AIT Implementation Plan
En route to POE	MACOM, Supporting CINC Requirement
APOE/SPOE	DoD AIT Implementation Plan
APOD/SPOD	DoD AIT Implementation Plan
APS - Afloat (APS-3)	DoD AIT Implementation Plan
APS - Land	DoD AIT Implementation Plan
Theater Staging Base	DoD AIT Implementation Plan
Onward Movement	Supported CINC Requirement
Destination (Integration – TAA)	DoD AIT Implementation Plan
Redeployment	
Origin (e.g., Assembly Area)	DoD AIT Implementation Plan
Transit Areas (RAA, TSB)	DoD AIT Implementation Plan
En route to POE	Supported CINC Requirement
APS – Turn-In/Draw	DoD AIT Implementation Plan
APOE/SPOE	DoD AIT Implementation Plan
APOD/SPOD	DoD AIT Implementation Plan
Onward Movement	Receiving MACOM/Parent Command
Destination (Home Station)	DoD AIT Implementation Plan

1-24. To meet the time criteria, interrelated AIT procedures must be planned and followed in all force projection operations. First, the initial source data in applicable AISs (Transportation Coordinators' - Automated Information for Movements System II [TC-AIMS II], or GCSS that feeds data to TC-AIMS II) must be accurate. This information is used to create AIT data storage devices (bar codes, military shipping labels, RFID tags, and Smart Cards) and to populate AISs (e.g. TC-AIMS II, Worldwide Port System (WPS), Global Air Transportation Execution System/Remote Global Air Transportation Execution System (GATES/RGATES), GTN and ultimately GCCS/GCSS and JTAV. Second, AIT infrastructure must be established throughout the force projection pipeline to quickly and accurately capture data on the arrival and departure of equipment and forces. The data capture will be used to update AIT and force tracking records and to verify the accuracy of advanced information received through automated information systems.

THEATER ITV PLANS

The Army's use of AIT in a force projection operation will be based on the supported combatant commander's movement control and Joint Reception, Staging, Onward Movement and Integration

(RSO&I) plan. The supported CINC J4 (specifically the Joint Movement Center, if established) will develop the theater movement control and ITV plans and policies, and coordinate them with supporting unified commands. The plans will be designed to enable the in-theater distribution systems to meet the Joint Force Commander force closure requirements. ITV plans will vary based on the geographic area of operation, mission requirements, and the supporting transportation and communication infrastructures. The Army Service Component Commander (ASCC) G4 will develop the Army's portion of the theater ITV and RSO&I plans. These plans describe the use of AIT and enable executing agencies to properly plan their local AIT requirements.

SECTION II – AIT SUPPORT FOR ITV AND FORCE TRACKING

GENERAL

1-25. AIT is not a stand-alone solution for solving the age-old problem of force tracking and reporting. AIT provides automated source data to AISs so these systems can meet the time standards of the DoD AIT Implementation Plan. Accurate and timely AIT and force tracking information is vital to the success of future Army force projection operations.

HISTORICAL PERSPECTIVE

Historically, commanders have faced two major problems in the force projection process. One, they had limited or no real visibility of what units were in the force projection pipeline or when these units would reach the area of operations (AOR). Two, because of the lack of visibility, commanders had no efficient method of redirecting movements or shipments as the operational situation developed. Additionally, in previous operations many commanders at the company level did not understand the reason or importance of ensuring their unit deployment lists (UDLs, also known as deployment equipment lists - DELs) were accurate and that AIT data storage devices were properly attached to all deploying equipment. The lack of visibility resulted in a loss of confidence by commanders at all levels in the ability of the transportation and other logistics systems to effectively support their operations.

In an attempt to solve these problems, Services and Army Major Commands (MACOMs) began developing systems to provide AIT, force tracking, and force closure information. Many of the systems were designed in traditional stovepipe architecture and were not compatible with other systems designed to accomplish the same task. Initiatives have been undertaken to standardize and solve the lack of visibility in the force projection process. The Army has realigned CONUS power projection platforms, supported the DoD AIT Implementation Plan, supported the development of TC-AIMS II, and produced the 100-17 series of field manuals providing the doctrinal framework for all force projection operations. These initiatives are designed to improve the force projection process and to instill user confidence that the logistics systems and processes will effectively support operational plans and requirements.

AIT/AIS COMMUNICATIONS

DoD and the Army are working on the development of several high level C2 and combat service support systems that provide total command and control and asset visibility. In the force projection process, the major systems in operation or under development include: Joint Operation Planning and Execution System (JOPES), GCCS, GCSS, GTN, WPS, GATES/RGATES, Integrated Booking

System (IBS) and TC-AIMS II. Appendix C discusses each of the automated information systems involved in the force projection process. MACOMs, Army commands, and agencies supporting the force projection process must develop plans that allow AIT enabling tools to capture movement data and rapidly pass that information to TC-AIMS II, WPS, and GATES/RGATES. These three systems can provide data to GTN, which in turn supports JTAV, GCCS, and GCSS.

To provide timely AIT and force tracking data, AIT must work in conjunction with, and enable automated information systems. To accomplish this, planners must position AIT data collection devices so they can accurately collect data on all movements passing their location and then rapidly provide that data to web-enabled automated information systems.

SECTION III – SOURCE DATA CAPTURE AND ITV

CAPTURING INITIAL SOURCE DATA

Accurate and complete initial source data must be entered in automated information systems before the deployment begins. For units, this means ensuring the UDL in TC-AIMS II is accurate and up-to-date. In addition, plans must be established to ensure MSLs and RFID tags are produced using the data in TC-AIMS II. Once produced, these AIT data storage devices must be attached to the proper piece of equipment and then scanned/interrogated to verify readability and accuracy. Commanders must ensure that every soldier has an updated Smart Card after completing the Soldier Readiness Process. Smart Cards will be used to manifest and account for soldiers at arrival and departure locations throughout the force projection operation. Depots and supply support activities must ensure data is accurate in their automated information systems (i.e., Distribution Standard System [DSS], Standard Army Retail Supply System [SARSS], Standard Army Ammunition System – Modernized [SAAS-MOD]) and AIT data storage devices (MSLs, RFID tags, and optical memory cards) are attached to all shipments before movement.

Once source data is verified, plans and procedures must be in place to ensure the information is passed to other automated information systems (TC-AIMS II at higher headquarters and the installation, and WPS and GATES/RGATES at POEs), GTN and other appropriate web-enabled asset tracking systems. After initial source data has been provided to automated information systems and proper AIT data storage devices have been produced, manual means to input similar information can be avoided.

The requirement to ensure accurate source data is captured in AISs and AIT data storage devices at the origin cannot be overemphasized. There are no TO&E units organized or resourced to produce AIT data storage devices or input initial source data in AISs if it is not completed prior to initial movement. Commanders must ensure source data is accurate and AIT data storage devices are applied at origin or timely ITV will not occur. Additionally, special provisions must be made to have accurate data for containers that have been reconfigured commercially to ensure accountability and visibility (MSLs/RFID tags for reconfigured cargo).

AIT AND FORCE TRACKING

1-26. The successful use of AIT to capture and report AIT and force tracking data requires established operational procedures at each node in the force projection pipeline. These operational procedures must address two interrelated functions:

- The use of AIT hardware to capture movement data and quickly report that information to supported automated information systems.

- The subsequent transfer of data from the local automated information system to GTN and other web-enabled asset and ITV tracking systems.

1-27. Once source data resides in a logistics AIS, the overwhelming choice to meet AIT requirements is to obtain the data from that AIS. If this approach is not feasible, a companion AIS (if one exists) that receives the data from the original AIS can be used.

Throughout the deployment and redeployment process, AIT interrogator/reader devices will be located at installations, transportation nodes, staging areas, and designated transit points. These interrogators and readers assist automated information systems in capturing and reporting AIT and force tracking movement data. As equipment arrives and departs each location, the attached RFID tags or military shipping labels are interrogated/scanned to collect movement data. This data is passed at preset intervals (usually one hour) to a local automated information system and then to web-enabled asset and ITV AISs (such as GTN and JTAV). All deploying and redeploying personnel will have their Smart Cards scanned as they arrive and depart each location. This information will also be passed to the local automated information system and then to the appropriate web-enabled asset and ITV AIS (such as GTN and JTAV)

AIT is dependent on accurate initial source data. If advanced data in automated information systems is not accurate, or does not match the information on AIT data storage devices, the equipment may be pulled from the normal flow and processed manually. Meeting the DoD AIT Implementation Plan time standards is only possible if equipment and personnel are correctly labeled or tagged before initial movement, and matching data is resident in automated information systems.

REDIRECTING MOVEMENTS

The availability of real-time or near-real-time positional data relating to units, equipment, and passengers provides commanders and logistics decision-makers the ability to redirect movements, when required. For movements utilizing satellite tracking, two-way communications is available between ground stations and the satellite transponder. To redirect the movement the ground station can contact the transponder element and provide the new information. For movements without satellite tracking, the C2 and logistics communities will know a particular unit's location or the approximate location if the unit or equipment is between nodes or designated transit points. By contacting the next destination, the decision-maker can redirect the unit or equipment.

DEVELOPING THE AIT INFRASTRUCTURE

1-28. There are two basic types of AIT suites to support AIT and force tracking data collection: permanent and deployable AIT capability kits (also known as 'fly-away' kits). Permanent configurations are installed at locations that typically handle a large volume of shipments or unit movements. Deployable AIT capability kits are used to outfit austere locations or locations that are not used on a routine basis but require AIT support for a particular operation.

- Permanent configuration – Facilities such as aerial ports, seaports, depots, Army Prepositioned Stocks–Land (APS-Land) storage locations, and military installations that are utilized for force projection operations on a regular basis are surveyed to determine the optimal AIT suite requirement. These locations are then permanently equipped with the necessary AIS and AIT hardware and software needed to support the force projection mission. The actual configuration is based on many factors including projected work load, facility/site operational requirements, and established force projection and day-to-day transportation and logistics operational procedures. Based on these factors, each site employs the AIT configuration that best meets their deployment support mission. All Army PPPs/PSPs and associated aerial and seaports have, or are scheduled to have a permanent suite of AIT.
- Deployable AIT capability kits – Deployable AIT capability kits support force projection locations not configured permanently for AIT or they augment already instrumented locations during surge operations. For example, if a major deployment were underway and the port of Beaumont experienced a significant degradation in throughput capacity, equipment destined for Beaumont could be diverted to Galveston. To accommodate the additional workload Galveston may have to contract for additional pier space not covered by the permanent suite of AIT devices. A deployable AIT capability kit could be temporarily installed at Galveston to handle the additional workload. The makeup of a deployable AIT capability kit is dependent on the nature of the AIT support requirement and existing infrastructure. The requirements may range from simple expansion of an existing capability to providing a wide spectrum of AIT support for multiple automated information systems at an austere location. When considering deployable AIT capability kits the additional infrastructure requirements of power, communications, administrative support, and AIS connectivity must also be addressed. Organizations that provide port support activities, arrival/departure airfield control groups, or en route support sites should consider these locations as potential deployable AIT capability kit sites when conducting installation surveys. For ports without permanent AIT/AIS that the United States Transportation Command (USTRANSCOM) has assumed port responsibility for, a deployable AIT capability kit will be used to support ITV. For those ports that USTRANSCOM has not assumed responsibility for, the CINC or organization needing the AIT capability should resource the site.

SECTION IV – SUPPORT CONSIDERATIONS WHEN EMPLOYING AIT

SECURITY

When planning automatic identification technology use, security of AIT hardware and data must be considered. There are three security areas to address: operational security, information systems security, and physical security.

- Operational security – OPSEC must be considered in all force projection operations. The AIT and total asset visibility (TAV) systems of the future will provide positional data on units and sustainment cargo down to the national stock number and social security number level of detail. When establishing AIT interrogation/read locations local security managers should be involved to ensure the protection of data transfer from AIT devices to automated information systems.
- Information System Security – Separate numbered companies through Corps, along with all combat service support and installation organizations that support force projection operations will possess TC-AIMS II. AIT and TAV will be integrated throughout the Army and DoD. As units move through the force projection flow, they will view the progress of their move by plugging their TC-AIMS II system into the local area network at each node. Army units will also provide arrival and departure airfield control groups and port support activities that will often operate on Air Force or Navy facilities. These elements will also possess AIT capabilities. All of these systems at the local, theater, and national level must be integrated to efficiently pass AIT data. Viable local area networks (and/or dial up capability procedures) with associated information systems security procedures must be established in advance of operations. These security procedures support the AIT and AISs at each node while at the same time protecting the data and integrity of the network.
- Physical Security – The physical security of AIT hardware must be considered upon receipt of the equipment, and whenever it is installed at fixed or temporary locations. AIT hardware must be protected from theft or damage the same as other Army AIS equipment.

AIT ACCOUNTABILITY

Commanders must ensure that correct supply accountability procedures are followed for AIT equipment issue and receipt IAW supply procedures in AR 710-2, *Inventory Management Supply Policy Below the Wholesale Level*, and in AR 735-5, *Policies and Procedures for Property Accountability*. In the past, some RFID equipment was issued directly to units without proper accountability documents. While the tags are coded expendable/durable, the interrogators are serial numbered and accountable items. Accountability is a particular concern for deployable AIT capability kits, as it is possible for the AIT equipment in these kits to change hands several times over the span of an operation.

AIT RECYCLING

Satellite transponders, RFID tags, and optical memory cards are reusable items. Commands need to establish appropriate measures to return these devices through the proper logistics channels upon completion of a movement. This requirement will necessitate MACOM level policy coordination in support of unified command plans and policies. For example, if Ft. Hood provides 500 RFID tags to a division that is deploying to the US Central Command (USCENTCOM) area of operation, should the RFID tags be maintained by the division and used for redeployment? Should USCENTCOM collect the RFID tags and use them in their theater distribution operation? Should the RFID tags be returned to Forces Command (FORSCOM) and Ft. Hood for use in follow-on deployments? MACOM

plans and policies must be coordinated with the ASCC and Supported CINC in the theater of operation to address these types of issues.

AIT OPERATIONAL SUPPORT

1-29. MACOMs and theater commands must develop plans to support subordinate AIT operations. In austere contingency locations, subordinate elements may not possess the necessary power, communications, or infrastructure to conduct effective AIT operations. When plans call for the use of deployable AIT capability kits, MACOMs must closely evaluate the additional support requirements and provide or coordinate the necessary assistance to support the operation.

1-30. Additional considerations for developing AIT plans include:

- Contingency Funding – How will AIT support for contingency operations be funded? RFID tags pose a particular funding problem if agreements are not established for their return or continued use after arrival in a theater of operations.
- Procurement and Maintenance – Until the standard Army management information systems (STAMISs) are fielded with AIT as part of their basic issue, the Logistics Integration Agency resources and distributes the initial RFID equipment to gaining commands. To sustain the RFID capability beyond initial fielding, the gaining command must include the required funds for equipment support and maintenance within their budget submissions. In addition, the gaining unit must also fund any additional AIT capability they may require if the need exceeds the initial distribution by LIA.
- Training – The DoD AIT CONOPS and Operational Prototype tests both recognized operators training as a significant weakness in AIT operations. Commanders must address the need for training and the required support to effectively implement the training on a reoccurring basis.
- AIT Equipment Contractor Support – Contractor support is an integral element of AIT. In addition to factory warranties, many AIT devices and associated AISs will be dependent on contractor support. Contractors are heavily involved in the installation of AIT, development of AIT/AIS systems, and training of system operators and managers. This contractor support must be planned for and utilized.

Chapter 4

FORT TO PORT

The seven sections in this chapter focus on unit deployments from home station through the ports of embarkation, to include rail moves. Section I discusses general AIT planning considerations for deployment operations. Sections II, III and IV address the AIT related actions that occur in the unit, at the Installation, and during the movement to POE. Section V discusses AIT at Aerial Ports of Embarkation (APOE), Section VI discusses AIT at Seaports of Embarkation (SPOE), and Section VII addresses deployment by rail.

SECTION I – GENERAL AIT PREPARATIONS

GENERAL

In most force projection scenarios, the Army will use AIT at each node in the deployment from fort to foxhole. The key to the successful use of AIT as a force projection enabler is unit AIT preparation before deployment. The unit has the ability at home station to capture source data, in its entirety, in AISs. Home station is also the logical location to prepare AIT data storage devices, i.e. bar codes, MSLs, RFID tags, OMCs, and Smart Cards for all deploying forces and equipment. AIT use at all follow-on transportation nodes in the force projection process is for data collection, ITV reporting, and verifying advanced data in AISs. The success of AIT activities at follow-on nodes is critically dependent on the deploying unit AIT activities at home station. If the AIT mission is not performed correctly at the beginning of the deployment, the age-old problem of limited or no ITV will continue.

CONUS UNIT DEPLOYMENTS

As an essentially CONUS based Army, the majority of forces projected into a theater of operations will deploy from the continental United States. These forces will be a mix of active and reserve component units. Active component units and the majority of RC units will deploy through Power Projection Platforms and Power Support Platforms. For the RC, there are three basic types of deploying units: direct deployers, modified deployers, and units that move to a power projection or power support platform with their equipment and then deploy.

- Direct deploying AC and RC units will use those AIT devices necessary to provide ITV data as their equipment and personnel move from home station to the theater of operations. Selection of AIT devices will be heavily dependent on the supported CINC's ITV plan.
- Modified RC deployers send their unit equipment from home station or designated storage location to the POE for onward movement, while soldiers travel to a training location. At the training location soldiers draw required equipment and conduct additional training. Modified deployers have AIT related missions at both the home station and training location. Before

leaving home station, they perform two AIT functions. First, they must update the unit deployment list and pass the data to their higher headquarters and supporting installation. This data will be used for TPFDD sequencing and will be the initial source data in the Global Transportation Network that is used for ITV and force tracking. Additionally, they must prepare their unit equipment for shipment to the theater of operations. This includes ensuring that proper AIT data storage devices are attached to the equipment before movement. After moving to the training location and completing deployment validation, soldiers undergo an SRP program and Smart Cards are issued/updated. If the unit draws any additional equipment for deployment while at the training location, it must ensure the UDL is updated and the data is available in GTN. Currently, units pass this updated information through the installation to JOPES and GTN; however, with the fielding of TC-AIMS II, passing data to JOPES and GTN will become a chain of command function. TC-AIMS II provides a capability to feed data to GTN if the installation or a higher headquarters is not providing the data. Before sending additional equipment to the POE, the unit must apply the proper AIT data storage devices. This will facilitate theater reception operations and the consolidation of equipment from home station with the equipment from the training location once it arrives at theater staging bases.

- RC units that move to a power projection or power support platform with their equipment before deployments have limited AIT requirements at home station. The majority of their AIT and ITV reporting requirements will come after validation at the power projection platform and before movement to the POE. Although AIT can be used to manage the movement from home station to the power projection or power support platform, there is currently no requirement for global ITV reporting for this move. These units have not been validated for deployment and there are no strategic transportation call-forward messages associated with the unit at this time. At the home station, units should ensure that their organizational equipment list (OEL) (also known as the automated unit equipment list - AUEL) is accurate and up-to-date, and that supply accountability bar codes are attached to their equipment. These actions will assist in automatic data capture as the unit prepares to deploy after validation. The unit will conduct the bulk of their AIT tasks after validation, following the same procedures as any other deploying active component unit. These AIT tasks and requirements are discussed in detail in Section II of this chapter.

OCONUS UNIT DEPLOYMENTS

Since the Persian Gulf War, forward-deployed Army elements have deployed and will continue to deploy to other theaters of operation in support of national military objectives. These units must use the same automated information systems and AIT available to their CONUS counterparts.

OCONUS unit deployments must take into consideration Host Nation requirements and limitations for using AIT. For example, RFID tag tracking is a method of providing ITV data collection for arrival of equipment at the SPOE or APOE. However, obtaining radio frequency approval from the host nation may be difficult, time consuming, and possibly unsuccessful. OCONUS deployment planners must consider alternate methods of providing onward movement ITV in the event RFID is not available. Alternate considerations include the use of satellite tracking and establishing a bar code scan capability at en route check points to capture ITV data as equipment temporarily halts during movement. In this scenario bar coded (unit move) MSLs could also be scanned to capture the arrival of equipment at the SPOE. Communications and personnel resources required to support

these alternate methods of data collection must also be planned. Scanning bar codes is much more labor intensive and time consuming when compared to RFID data collection.

1-31. In addition to APOEs and SPOEs, OCONUS units may deploy using rail as the designated mode of transportation to move units to their destination within a theater (for example, units from central European installations deploying to Bosnia).

AIT SECURITY CONSIDERATIONS

Organizations planning AIT support for force projection operations must consider associated AIT security requirements. There are three security concerns that must be evaluated in the fort to port phase of deployment: operations security, physical security, and information systems security. Additionally, planners must consider the differing Service security requirements and the security needs at each node and location in the force projection operation. Failure to plan for these requirements can jeopardize the use and effectiveness of AIT in force projection operations. Security considerations when crossing command and inter-Service boundaries should be planned for and agreed upon in peacetime to avoid costly delays in a crisis. Security requirements can have significant impacts on the use of AIT. Security considerations are discussed in detail in Chapter 3.

MACOM PLANNING CONSIDERATIONS

Whether CONUS or OCONUS, MACOMs must be actively involved in the implementation of AIT support plans. MACOMs routinely task subordinate elements to perform specific AIT functions. It is imperative that MACOMs provide the necessary expertise and AIT resources to assist units and installations in executing AIT support plans. General MACOM AIT planning considerations are:

- Address/establish en route to POE support and associated AIT use for reporting requirements.
- Ensure subordinate organizations are resourced to perform tasked AIT requirements at locations such as:
  - Installations
  - Convoy Support Centers or locations with similar functions
  - Port support activities
  - Marshaling area activities
  - Arrival or departure airfield control group activities
- Establish or coordinate the establishment of inter-Service support agreements or memorandums of understanding between USTRANSCOM elements and Army port support activities or arrival/departure airfield control group elements. These agreements should address the use and integration of AIT at USTRANSCOM locations. (Separate AIT related support agreements may be required between Army elements and Air Force elements controlling APOEs not under USTRANSCOM authority.)
- Provide/establish guidance for equipping ad hoc organizations (i.e., departure airfield control groups (DACGs) or port support activities) that are assigned AIT tasks with the required AIT and supporting automated information system and communications. Under the TC-AIMS II basis of issue plan, only arrival/departure airfield control groups (A/DACGs) and port support activities (PSAs) that are assigned AIT tasks from TO&E Cargo Transfer or Cargo

Documentation elements will have TC-AIMS II. All other A/DACGs and PSAs will require an AIT support capability from the installation or command providing support to the POE.

- Monitor and enforce standards for AIT use, security, and reporting.

SECTION II – UNIT RESPONSIBILITIES

GENERAL

Home Station is the permanent location of active and reserve component units. After receiving the alert or warning order of an impending deployment, the unit has seven AIT related responsibilities at home station.

- Plan for the use of AIT in the force projection scenario based upon the mission and supported CINC requirements.
- Ensure the UDL (modified Automated Unit Equipment List) is complete, accurate, and up-to-date.
- Pass the UDL to higher headquarters and to the installation the unit will use as a departure point.
- After receiving transportation data, properly label all deploying equipment with bar codes.
  - Print applicable bar code labels for every piece of deploying equipment (supply accountability and military shipping labels).
  - Use the TC-AIMS II hand held scanner to verify that each MSL is readable and accurate. This is an AIT critical action and should be closely monitored during the deployment process.
  - Ensure bar codes, particularly military shipping labels, are properly affixed to the equipment. (See appendix B for additional information and guidance on the placement of military shipping labels.)
- Use TC-AIMS II to write RFID tags (If RFID tags are being used).
  - Use a TC-AIMS II RFID interrogator to verify the accuracy of RFID tag data.
  - If RFID tags have been modified, ensure TC-AIMS II is updated and pass the information to higher headquarters and the installation.
  - Properly affix RFID tags to the correct piece of equipment in accordance with applicable standard operating procedures (SOPs).
- Use TC-AIMS II to verify batteries are functional (low battery check).
- Ensure every deploying soldier has an accurate and current Smart Card. This requirement is normally supported by the installation and accomplished during soldier readiness processing.
- Ensure the security of AIT data and equipment in accordance with applicable supply and information security procedures.

1-32. RC direct deploying and modified deploying units face additional AIT challenges when moving from home station to the POE that units moving from an installation to a POE may not encounter. Local SOPs and formalized AIT support agreements between direct and modified

deploying RC units and their supporting installations need to be planned in advance to preclude deployment delays. The planning should address:

- Where and when will the unit get RFID tags to use on deploying equipment?
- Where will the unit conduct its final SRP and who will produce/update Smart Cards for the soldiers?
- Where and how will the unit pass source movement data to ensure it is visible in GTN?

UNIT AIT PLANNING

All deploying units are required to develop deployment plans. Requirements to maintain these plans depend on unit mission and guidance provided by higher headquarters and the supporting installation. Units may have several deployment plans based on the contingency operations they support. Each plan may vary the number and types of equipment the unit deploys with, and may involve different timelines, deployment departure locations, and ports of embarkation. These plans may also call for different force tracking requirements. AIT preparation and use must be considered as a key predeployment activity in support of deployment plans.

With the introduction of TC-AIMS II and the Computer Automated Transportation Tool (CATT), all deployable battalions and numbered companies will have the ability to produce AIT data storage devices, (i.e. bar codes and RFID tags). Producing these devices and passing the applicable data to web-enabled AISs will enable ITV and force tracking timeliness reporting during deployment from fort to foxhole. It is the responsibility of the commander and the unit movement officer (UMO) to ensure the unit fully uses the applicable AIT capabilities before movement. These responsibilities include ensuring all unit equipment is properly labeled and tagged with the correct AIT data storage device and the information in the UDL is up-to-date. Based on MACOM policy, the UDL and movement data can then be passed to higher headquarters, the installation, appropriate transportation systems (WPS, GATES/RGATES, Cargo Movement Operations System [CMOS]), and ultimately to GTN. Regardless of the scenario, procedures must be established to ensure source and movement data is sent to GTN and other applicable web-enabled asset and ITV systems.

Deploying unit requirements cannot be over emphasized. If units fail to properly label and tag their equipment before beginning the deployment, or fail to update automated information systems, there are no established TO&E units that have the resources or mission to correct this shortcoming. Ensuring AIT data storage devices are accurate, properly attached to unit equipment, and readable facilitates ITV with limited human intervention at the other transportation pipeline nodes. AIT readers and interrogators report the movement to automated information systems enabling the transportation node to meet the ITV timeliness standards addressed in the DoD AIT Implementation Plan. With this visibility, deployment managers can ensure forces deploy in time to meet their equipment as it arrives in the theater. It will be extremely difficult for deployment managers to successfully track and control the flow of units that fail in performing AIT tasks at this initial stage. Reception at subsequent nodes will be adversely affected as data collection for arriving units and equipment will have to occur manually. Manual procedures slow the deployment process and may jeopardize force closure objectives.

To standardize AIT use at home station and the installation, units should develop detailed annexes to their garrison and tactical standard operating procedures. The garrison SOP (GSOP) should specify the procedures, responsibilities and quality control for ensuring that all equipment is properly bar coded, to include location of MSLs on equipment and containers. Discussion of both supply accountability and military shipping labels should be addressed. The GSOP should also discuss the physical security and accountability of AIT equipment. The tactical SOP (TACSOP) should cover details, assign responsibilities, and provide for quality control of AIT use in the unit marshaling and staging area while preparing for deployment. This annex should address the use of

bar codes, RFID tags, and TC-AIMS II/CATT data feed. The TACSOP should also cover OPSEC of AIT/AIS data.

Updating the Unit Deployment List

1-33. The UMO will use TC-AIMS II to create an accurate UDL that identifies all items that will deploy. It is absolutely critical that UMOs complete this task accurately. Units scheduled to draw Army Prepositioned Stocks will upload the equipment list from the automated battle book provided by the Army War Reserve Deployment System (AWRDS). These units must plan to deploy any additional equipment that is required but not in the Army prepositioned stock. The crucial factor at this point is ensuring all deploying equipment is accurately reflected in the UDL. If data resident in TC-AIMS II/CATT is inaccurate, it can disrupt the flow of units and will impact force closure requirements.

Updating Automated Information Systems

1-34. Prior to departure from Home Station the UMO ensures that all movement data in TC-AIMS II/CATT is accurate and forwarded to the supporting installation and higher headquarters. Local procedures may require the UMO to pass this data to other locations in addition to the two listed above. In most cases, the installation local area network (LAN) should allow for an electronic transfer of this data or the ability should exist to connect to the Terminal Server Access Controller System (TSACS) via dial-up. If there are problems with the LAN, the data should be delivered on a floppy disk. The installation unit movement coordinator (or designated staff/agency) will review the file. When the review process is complete, the file will be passed to the Joint Force Requirements Generator II (JFRG II) and or COMPASS and then to JOPES. If the installation agency is not tasked with this requirement, TC-AIMS II has the capability for the UMO to pass data directly to JFRG II/COMPASS. USTRANSCOM will use this information to schedule strategic lift assets.

1-35. The passing of source data between automated information systems is the preferred method for meeting ITV and force tracking timeliness standards. All nodes in the force projection operation use this data to update their automated information systems for ITV and reception purposes. (For example, in an OCONUS deployment TC-AIMS II will feed Advance Transportation Control and Movement Document [ATCMD] data to WPS when unit equipment is moving to a seaport. AIT data storage devices attached to each piece of equipment will allow the SPOE to quickly verify the accuracy of the data that was transferred between TC-AIMS II and WPS. Any differences between the AIT data storage device and the information resident in WPS will cause delays in the movement flow while the discrepancies are corrected.) Down-stream nodes in the force projection operation will scan/interrogate the AIT data storage devices that are attached to unit equipment and use the information to verify the accuracy of data in their AIS. The AIT data storage devices must be present, and they must match the advanced data in the automated information systems in order for the AIT/AIS system to work. Data discrepancies will cause manual intervention and slow the deployment flow.

> Bar code labels were missing from the majority of KFOR cargo arriving at the port… In addition, advanced data received from TCACCIS was inaccurate. All consignor and consignee fields were filled with the default code of "111111" so the port operators could not use AIT or AIS to verify the unit that was shipping the equipment and the unit that would receive the equipment….

Additionally, there were problems reading bar code labels because operators were inputting the letter 'O' rather then the number '0' in the TCN…. This error caused WPS to reject the TCN. This rejection caused delays in passing the information from WPS to ICODS. These errors caused delays in stow planning and loading vessels while port documentation personnel manually corrected the information problem.

USTRANSCOM DCINC input to the Director of the JS

Kosovo After Action Report

Labeling Equipment and Supplies

During the period between receipt of the alert or warning order and movement to the POE, the unit (normally the UMO or designated soldiers) will finalize the UDL. (This task is made much simpler and faster if units keep the OEL current.) After validating the shipping status (size, weight, TCN, line identification number [LIN], model, and configuration) of the equipment to deploy, the unit updates its load plans and produces accurate military shipping labels and required RFID tags. Units should use Mylar military shipping labels if available since mylar labels can withstand damage from the weather better than paper MSLs. If paper MSLs are used, they should be laminated or otherwise protected from the elements. After printing the labels and writing the tags, the unit uses the interrogator/scanner provided with TC-AIMS II to confirm that AIT data storage devices are readable and accurate. Once verified, the unit ensures the labels and RFID tags are properly affixed to all deploying equipment. (See Appendix B for information on how to apply bar codes and RFID tags to unit equipment.) After military shipping labels are attached, the unit should verify they are readable. Historically, labels have been damaged while being placed on pieces of equipment. If the unit makes some type of physical check mark on the MSL (for example, using a grease pencil to place a mark on labels and tags that have been verified) they must ensure that the mark is not made on the linear or 2D bar code symbology. This can make the symbology unreadable at follow-on nodes.

It is essential that the unit ensures MSLs and RFID tags are accurate, properly attached to unit equipment, and the data on the RFID tag or MSL matches data in TC-AIMS II/CATT. Additionally, the battery life in RFID tags should be checked. If the tag battery life is low (low battery status) the batteries should be replaced prior to the unit departing home station. The MSLs and RFID tags will be read/interrogated numerous times throughout the deployment for rapid source data collection and to verify advanced information received via AIS data transfer. If the MSLs and RFID tags cannot be located or are missing, non-operational, damaged, or inaccurate, the equipment will have to undergo a manual processing procedure. In/out checking of equipment manually takes a significantly longer time than interrogating a RFID tag or scanning a bar coded MSL. Incorrectly labeled and tagged equipment will cause delays in movements at subsequent nodes in the force projection operation.

Consolidating Unit Equipment for Movement

AIT interrogators/readers can be used to capture the source data and improve asset visibility over deploying containers, multi-packs, pallets, connexs and other consolidated shipments. As units load equipment into containers or build pallets, the supply accountability bar codes can be scanned using the TC-AIMS II hand held interrogator/reader. After the packing is complete, the hand held interrogator/reader transfers the data to the TC-AIMS II computer. TC-AIMS II can then be used to generate a packing list and write a RFID tag. The RFID tag contains a detailed listing of all the unit equipment consolidated within the container. The RFID tag is then attached to the consolidated shipment for ITV tracking. Detailed content information can also be viewed without having to open and inspect the container/pallet.

SECTION III – INSTALLATION LEVEL RESPONSIBILITIES

GENERAL

In CONUS, the majority of forces will deploy from power projection platforms with other forces moving from power support platforms and as direct deployers. Within FORSCOM, the installation is tasked with the responsibility to validate, support and push units during force projection operations. The area support group (ASG) or base support battalion (BSB) will normally perform support and pusher functions in OCONUS operations. In CONUS and OCONUS deployments, MACOM level regulations and policies should detail deployment responsibilities and address AIT use by the units responsible for supporting the force projection operation.

INSTALLATION AIT PLANNING CONSIDERATIONS

Installations and other organizations that support movements of deploying units such as Garrison Commands, ASG, BSB, and designated pusher units, must plan for the use of AIT in force projection operations. Each force projection operation is unique based on factors such as the number and types of units deploying, timelines, logistics and transportation infrastructure, and distances to the POEs. Although unique, all force projection operations require accurate tagging and labeling of all equipment and personnel departing the installation, and the subsequent reporting of that information in AISs that feed GTN. AIT readers/interrogators must be properly positioned and utilized to support this reporting requirement. With the introduction of TC-AIMS II, the installation staff and all units from separate or numbered companies through Corps will have AIT capabilities. The installation must establish procedures for the use of these systems at the installation nodes to ensure the AIT mission is accomplished.

AIT can assist the installation in fulfilling its force projection support mission. Installation SOPs must clearly address the use of AIT in support of force projection operations and define staff and unit responsibilities. At a minimum, the following areas should be considered:

- Identification of automated information systems where source data resides, (e.g., TC-AIMS II server, regional ITV server) and what agency is responsible for the data's accuracy and timeliness.
- Use of Smart Card technology for deployment/redeployment of personnel.
- Use of bar codes, OMC, RFID and other automatic data storage devices for deployment/redeployment of unit equipment and sustainment cargo.
- Establishment of quality control procedures to ensure every piece of equipment, or person deploying from the installation, has an accurate and readable AIT label, tag, or Smart Card.
- Positioning AIT interrogators and readers to capture all deployments from the installation (e.g., installation gates, airfields, and PAX loading area).
- Funding of AIT hardware and software.
- Obtaining contractor support for AIT.
- Procedures for obtaining assistance when AIT requirements exceed capability or there are problems with AIT.
- Maintenance of AIT hardware and software.

- Communications infrastructure supporting the AIT/AIS interface.
- Accountability of AIT devices.
- Security of deployment data and AIT hardware.
- Training of TC-AIMS II/CATT and AIT operators and maintainers.
- Use of AIT in PSA/DACG support missions.
- Use of AIT to support en route to POE tracking.
- Automated information system structure and ITV reporting to transportation AISs that feed data to web-enabled asset and ITV systems such as GTN, JTAV, and GCCS.

INSTALLATION AIT RESPONSIBILITIES

The installation has numerous AIT responsibilities in support of deployment and redeployment operations. Key to the success of installation operations is properly planning and rehearsing deployment and redeployment activities. Plans and rehearsals help define the deployment operational procedures. The available suite of AIT devices on any particular installation should be located to support in-place processes. The four critical installation AIT tasks are:

- Ensure AIT interrogators/readers are strategically located to capture all movements onto and off the installation.
- Ensure data in automated information systems (TC-AIMS II) is accurate, up to date, and passed to the Global Transportation Network within established time standards.
- Ensure, in coordination with the deploying commanders, that every soldier deploying from the installation has an accurate and up to date Smart Card and all equipment is properly tagged with military shipping labels, RFID tags, or OMC.
- Ensure that installation AIT operational procedures support and complement operations at down-stream nodes. It does little good to push units rapidly off the installation if they are later delayed at the POE or RSO&I facilities because of a failure to perform required installation AIT actions before departure.

Installations have taken different approaches for accomplishing their deployment support mission. For example, Fort Campbell KY has instituted a Regional Business Center and Fort McCoy WI has established a Power Projection Quality Management Board. While the organizational approaches may differ, the AIT and automated information system tasks to be performed at the installation level are basically the same. AIT related tasks at this level include:

- Review, approve, and coordinate deployment plans.
- Establish procedures for unit movement data maintenance and reporting – review and validate unit movement data.
- Maintain a current copy of the automated unit equipment lists on file.
- Establish procedures for collecting new equipment movement characteristics.
- Establish installation level procedures for properly placing bar coded MSLs, RFID tags, OMCs, and any other AIT data storage devices on equipment to ensure their readability and protection.
- Verify that all unit equipment is properly marked before movement via any mode of transportation.

- Capture and report the departure of equipment from the installation.

Installation Deployment Information Network

2- Since separate and numbered companies, battalions, brigades, divisions, corps, and installations will possess TC-AIMS II/CATT and associated AIT devices, a plan must be in place to create a local area network that links installation deployment nodes (e.g., rail yard, convoy staging area) and all headquarters possessing TC-AIMS II/CATT and associated Global Combat Support Systems. This network must be capable of operating 24 hours a day to support the deployment flow throughout the force projection operation. If a LAN is not available, a direct dial-up capability should be considered. In addition to linking all the TC-AIMS II and global combat support systems to this LAN, procedures must be in place to link AIT interrogators/readers that are supporting automated information systems. These procedures allow for the automatic capture and transfer of movement data with limited human intervention. Installations must ensure that all deployment sites are connected to the LAN, or can be rapidly connected in case of mobilization or deployments. As units deploy, they will take their TC-AIMS II and AIT for use in the new theater of operations. Installations must plan for this occurrence and ensure no gaps exist in the coverage of movements from the installation.

The installation staff must also plan or coordinate AIT support for PSA, A/DACG, and other en route-to-POE locations that have been assigned ITV or AIT requirements. This support will depend on MACOM taskings, the deployment/redeployment scenario, deployment support responsibilities, physical infrastructure at each of the locations, and distance between nodes. AIT sites, both on and off the installation, must be linked to support management of the deployment flow while meeting the data timeliness criteria for successful ITV reporting.

Installations have a responsibility to build a deployment plan for all units and equipment deploying from their location. The information used to develop the deployment plan comes from OELs and passenger manifests. It is the unit's responsibility to ensure that this source data is accurate and up-to-date. In addition to building the deployment plan, installations take the data that is rolled up in TC-AIMS II and pass it to the Global Transportation Network as movements occur. The installation will be the first location where AIT data storage devices are scanned/interrogated and verified against data resident in automated information systems. Closely checking the AIT data storage devices of the first deploying units provides the installation and deploying commanders a benchmark to measure how well units are conducting their AIT mission. Later deploying units can be informed of AIT problems and correct deficiencies before departing the installation.

AIT Interrogator/Reader Positioning

The installation must examine the deployment/redeployment process and determine the best location to install fixed and temporary AIT interrogators and readers. Interrogators/readers serve two basic purposes; they automatically capture and report the movement of unit equipment or personnel passing the interrogator location, and they assist in finding unit equipment in staging areas. (See Figure 4 – 1 for Notional Installation AIT/AIS Considerations.) A list of potential installation AIT sites follows. This list is not all-inclusive and various installations may identify these sites by different names.

- All gates where units, unit equipment, and sustainment cargo will arrive or depart. (RFID)
- Convoy Marshaling/Staging Areas. (RFID, bar code, and Smart Cards)

- Airfield Marshaling Area. (bar code, Smart Card, RFID)
- Transportation mode (rail/highway/barge) loading areas. (bar code)
- Container Consolidation Point. (RFID, bar code, and OMC)
- Ammunition Supply Point. (RFID, bar code, and OMC) (Note: Radio frequency data communications [RFDC] are prohibited from use near certain types of ammunition because of hazards of electromagnetic radiation to ordnance (HERO) concerns. Ammunition shipments where HERO is a problem need to use MSLs or other means to provide AIT support for these movements.)
- Readiness Brigade Lock-Down Areas. (RFID, bar code, and Smart Card)
- Soldier Readiness Processing Validation Sites. (Smart Card)
- Passenger Holding/Staging Areas. (Smart Card)
- Bus or Aircraft Passenger Loading Areas. (Smart Card)

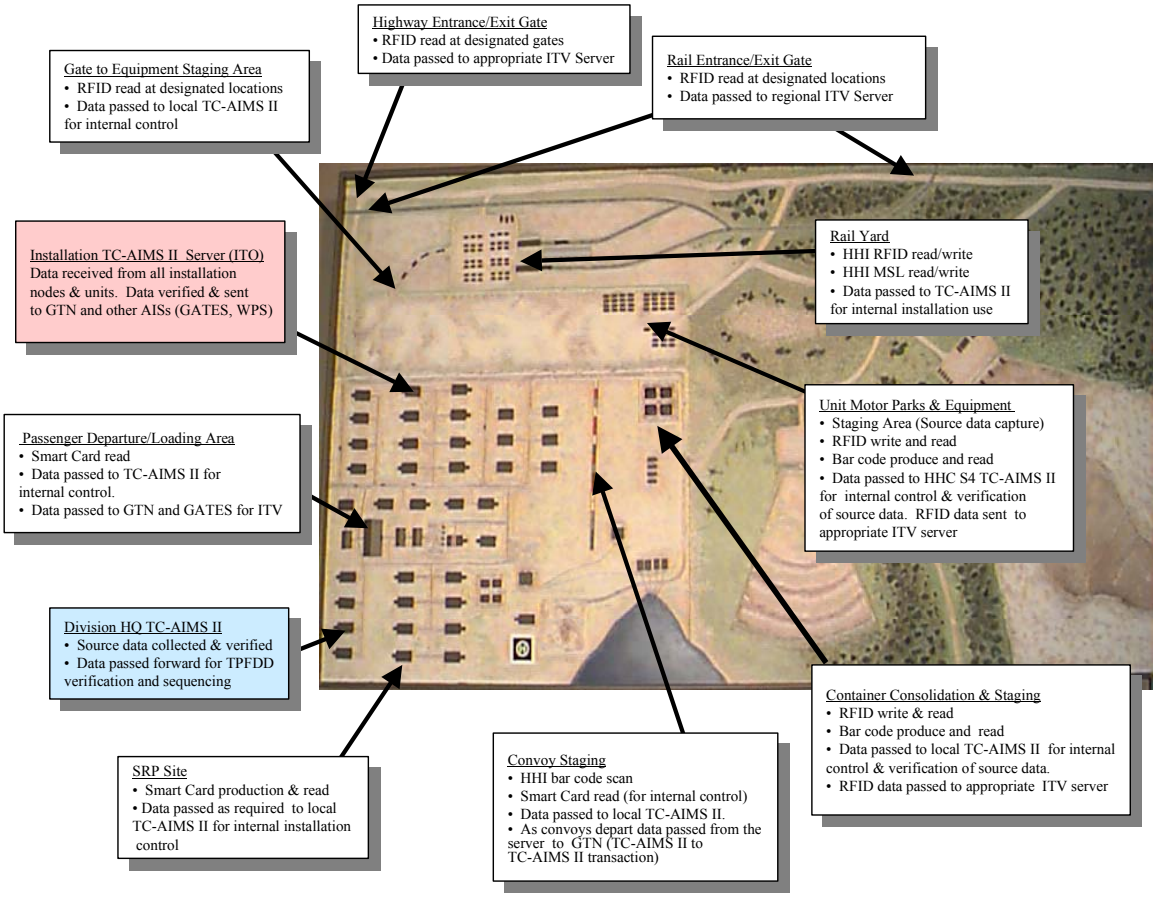

Figure 4 – 1 Notional Installation AIT/AIS Infrastructure Considerations

2-1. Not all deploying equipment will have RFID or satellite tracking systems for automatic data capture. However, this equipment will have bar coded MSLs attached. Installations must

plan for the use of hand held interrogators/scanners to read equipment bar codes (MSLs) at the various deployment nodes on the installation and at the port support activities, arrival/departure airfield control groups, and en route support sites. Portable readers can also be used to scan Smart Cards at the various personnel processing and deployment locations. Once the bar code is scanned, the HHI passes the data to supporting AIS by either RFDC or batch downloading. This data must then be passed to web-enabled AISs for ITV reporting and tracking.

Installation Use of Smart Cards (also called Common Access Cards)

2-2. Movement of soldiers through the force projection process can be expedited with the use of Smart Cards. Installation consolidated soldier readiness processing (SRP) sites should be equipped with the capability to produce/update Smart Cards. As soldiers complete the SRP process, their personal deployment information is written to the Smart Card. The Smart Card is then used to capture movements as the soldier travels through the deployment process. Smart Card use eliminates the need for paper manifesting of soldiers as they load transportation moving from the installation to the POE. Hand held or fixed readers can be strategically located to scan the Smart Card and match the data with the advanced manifest received from TC-AIMS II or any other automated information system.

OTHER INSTALLATION LEVEL AIT CONSIDERATIONS

MACOMs normally task installations to provide en route and POE support for deployments originating in, or passing through the installation geographical area of responsibility. For example, FORSCOM has tasked Ft. Bragg NC to provide a PSA at Charleston SC. Charleston is also the SPOE for Ft. Campbell units in some deployment scenarios. En route and POE support requirements are discussed in Sections IV, V, and VI of this chapter.

SECTION IV – INSTALLATION SUPPORT EN ROUTE TO POE

EN ROUTE TO POE AIT REQUIREMENTS

Various installations in CONUS are assigned supporting installation missions within geographical areas of responsibility IAW AR 5-9, *Area Support Responsibilities*. ASGs or BSBs normally perform this requirement during OCONUS deployments. The required en route support will vary based on factors such as C2 requirements, distance to the POE and ITV requirements. There are no timeliness reporting standards for en route ITV established by the DoD AIT Implementation Plan. En route support missions may require maintenance or life support. If a support site, manned rest halt, or convoy support center (CSC) is established, consideration should be given to collocating a TC-AIMS II system with fixed and hand held interrogators/readers. This will enable the site to capture the arrival and departure of equipment and convoys moving to and from the port. For ITV requirements, supporting installations should also consider the feasibility of placing fixed interrogators at designated highway and rail transit points leading to POEs. This allows data capture of RFID information as the equipment passes the interrogators.

Other en route AIT data collection options include:

- Placing satellite transponders in selected vehicles (e.g., convoy commanders vehicle, vehicles with sensitive items) and monitoring the movement via satellite.

- Using commercial carrier AIT with electronic data interchange feed to the Global Transportation Network.

SECTION V – AERIAL PORTS OF EMBARKATION (APOE)

GENERAL

APOE operations, by their very nature, cross inter-Service boundaries for most force projection operations. The A/DACG is the primary organization responsible for Army operations at airfields. The arrival and departure of all unit equipment, personnel, and sustainment air cargo moving to and from APOEs must be captured in automated information systems and reported to GTN within one hour of event occurrence. There are three primary organizations operating at the APOE that may possess AIT enabling tools; the Air Force element responsible for aircraft loading, the Army port movement control team (if established), and the Army Departure Airfield Control Group. Detailed inter-Service support agreements or other arrangements should be established in advance of operations if no theater ITV plan is developed detailing AIT requirements at the APOE. The arrangements must address each organization's functions and responsibilities as they relate to AIT. DACGs that come from TO&E cargo transfer or cargo documentation elements will be equipped with TC-AIMS II and related AIT. Ad hoc DACGs will not have an organic TC-AIMS II capability. Supporting installations and commands providing ad hoc DACGs must plan for obtaining TC-AIMS II and associated AIT from either internal or external resources if the DACG is assigned an AIT mission. Port movement control teams will have TC-AIMS II and associated AIT devices.

No unit equipment or sustainment cargo should leave an APOE without, as a minimum, accurate and readable bar codes. RFID tags may also be attached. All soldiers should possess an accurate and up-to-date Smart Card. Supporting installations that are tasked to provide DACG functions at airfields located a considerable distance from the installation must consider providing the DACG with the necessary AIT capability to support all AIT requirements. This may include an element capable of producing Smart Cards.

AIT PLANNING CONSIDERATIONS AT THE APOE

MACOMs, supporting installations, (or the Army organizations responsible for providing airfield support), and the Air Force element responsible for APOE operations need to address AIT considerations in advance of deployment operations such as:

- How will the arrival information for Army equipment and personnel be captured in an automated information system and the data passed to GTN when the unit or equipment arrives at the airfield?
- What are the AIT related responsibilities for the marshaling area, passenger holding area, alert holding area, and call-forward area?
    - What organization will provide the AIT hardware used at these locations?
    - What AIT related controls and checks will occur at these locations?

AIT use at the aerial ports requires detailed planning and prior coordination to effectively support ITV information requirements. Ports by their very nature are transportation choke points and can easily be saturated if operations are not carefully planned or movements do not flow as scheduled. Marine Corps, Navy, Air Force, day to day sustainment cargo, and commercial cargo may be passing through the same facilities as deploying Army units. Additionally, passengers and unit equipment usually do not flow through the same physical locations on the airfield. When planning AIT operations, a system must be established to capture the arrival and departure of both passengers and equipment. (See Figure 4 – 2 for a notional diagram AIT/AIS use at an APOE.)

The following Army AIT considerations should be addressed when operating at aerial ports of embarkation:

- How will the established Air Force AIT infrastructure at the APOE be supported, impacted, or augmented by AIT from Army elements operating at the APOE during force projection operations?
- What automated information system will contain the primary source data used to feed the Global Transportation Network? (Air Mobility Command will use GATES/R-GATES). For airfields not controlled by Air Mobility Command, an arrangement addressing Global Transportation Network reporting must be developed to meet DoD and Supported CINC ITV requirements. This is normally a MACOM level responsibility.)
- What are the communication requirements and restrictions at each particular airfield that will affect the use of Army AIT?
- Where will interrogators be installed to collect movement data?

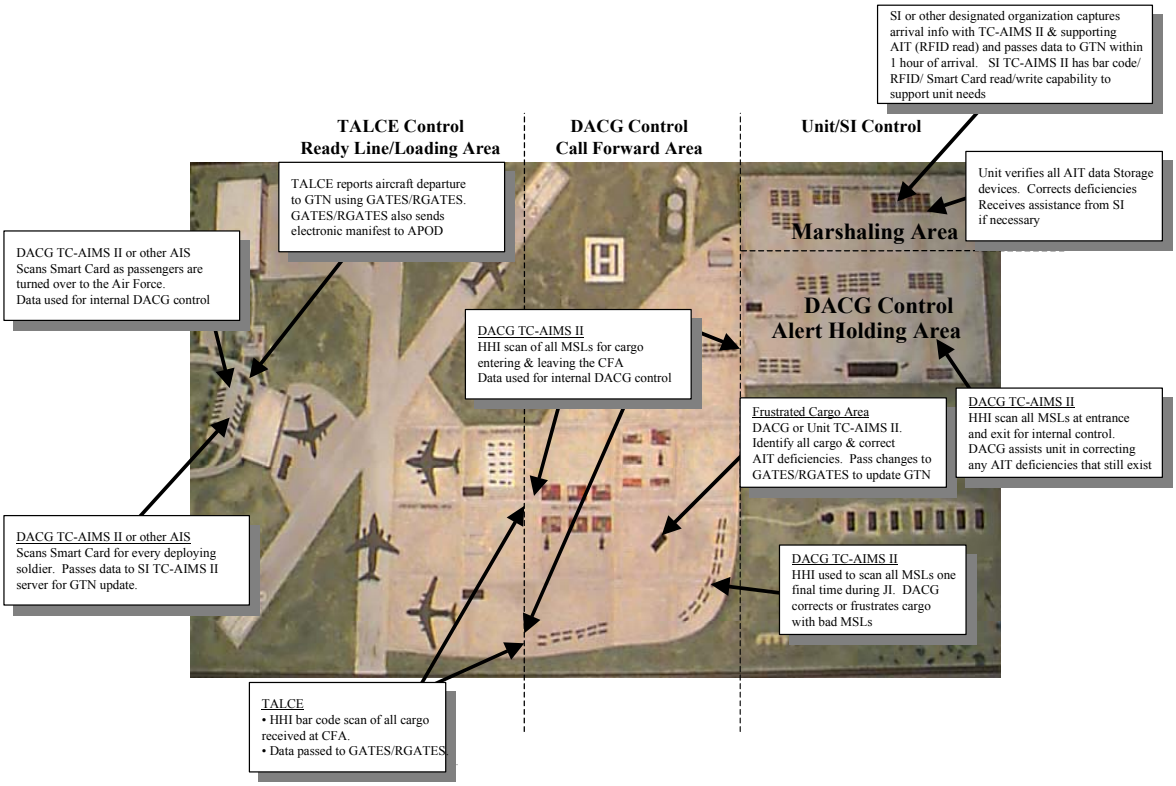

Figure 4 – 2 Notional APOE with AIT/AIS Infrastructure Considerations

2-3. Currently there are no standard methods of collecting and reporting the arrival of Army unit equipment and personnel at APOE gates or marshaling areas on the airbase. The deploying command, in coordination with the Army element responsible for operations at the APOE (e.g. supporting installation or DACG) should decide when and where they want to capture data on arriving units and equipment. The Army element supporting APOE operations will then coordinate with the Air Force for specific requirements, infrastructure, and support in order to

collect and report data on Army unit and equipment arrivals on the air base. Arrival at the APOE must be reported to GTN within one hour of event occurrence.

PASSENGER MOVEMENTS THROUGH AN APOE

Passengers moving through an APOE can expect to process through two distinct areas: the marshaling area and the passenger holding area. Marshaling areas may be located at the home installation, at the APOE, or in both locations depending on the deployment scenario and distances.

The marshaling area is usually provided by the installation or base commander and should be as close as possible to the APOE. However, marshaling activities may also be conducted within the deploying unit's permanent area. Both the unit and the organization responsible for supporting operations at the marshaling area have AIT related responsibilities:

- Unit responsibilities:
  - Verify personnel manifests.
  - Ensure all soldiers have accurate and up-to-date Smart Cards. If the marshaling area is at an airfield located a considerable distance from home station or home installation, Smart Cards should be issued before movement to the marshaling area.
- Army command controlling the Marshaling Area responsibilities (may be a supporting installation, DACG, or other designated unit/command):
  - If the marshaling area is on the air base, scan arriving soldier Smart Cards for internal accountability and for ITV reporting requirements. If this is the initial arrival area for soldiers at the APOE then procedures must be established to report this data to GTN within one hour of the event occurrence IAW the DoD AIT Implementation Plan standards.
  - Assist the unit in correcting any Smart Card deficiencies.
  - Scan all Smart Cards and match the data against the manifest as soldiers depart the marshaling area for the passenger holding area.

2-4. Normally a distinct passenger holding area will be established near the APOE that is jointly operated by the Army and Air Mobility Command or other Air Force elements. Soldiers arriving from the marshaling area will link up with soldiers that were assigned duties loading unit equipment aboard the aircraft. As soldiers arrive, the DACG, or other supporting Army element, will scan their Smart Cards and verify the information against the unit manifest. If the marshaling area was at home station, and this is the first time data has been collected on the arrival of passengers on the air base, procedures must be established to pass this data to GTN within the one hour time standard. The DACG will assist in making any final manifest corrections. When notified, the DACG passes control of deploying soldiers to the Air Force element along with an electronic copy of the personnel manifest. The Air Force element will load this electronic data into GATES/R-GATES and pass departure data to GTN within one hour of aircraft takeoff.

UNIT EQUIPMENT MOVING THROUGH AN APOE

Unit equipment normally passes through four distinct areas when deploying through an APOE: Marshaling Area, Alert Holding Area, Call-Forward Area, and Ready Line/Loading Areas. Organizations have overlapping responsibilities in each of these locations and procedures should be established prior to beginning operations.

Marshaling Area

An equipment marshaling area can be located on the installation, in the vicinity of the airfield, or in both locations depending on the deployment situation. Not all deployments require the establishment of a marshaling area at the APOE. Based on the deployment timeline, distance between the home station and the APOE, space requirements, and marshaling space available at the APOE, a marshaling area may be established near the port facility for equipment consolidation. The marshaling area is normally operated by the supporting installation or area support group whose geographical area of responsibility controls the area around the port complex. If a MACOM or theater ITV plan does not clearly address APOE responsibilities, the Army command responsible for providing the marshaling area should develop a Memorandum of Understanding (MOU) or some other arrangement with the Air Force command responsible for the airfield. This agreement should define marshaling area functions and how they support requirements at the APOE.

Deploying units, with installation or other designated support element assistance, are responsible for preparing their equipment at the marshaling area. Key AIT considerations (based on time available and AIT preparation completed at origin/home station) at the marshaling area are:

- Unit Considerations:
  - All equipment must have a MSL. This requirement includes equipment with RFID tags.
  - Ensure all equipment still has the correct label and/or RFID tag and that the AIT data storage devices (e.g. bar codes, military shipping labels, and RFID tags) are functional and have not been damaged or lost in transit. (Note: If the marshaling area is at an airfield located a considerable distance from the installation or home station, the tagging and labeling of equipment should occur before movement to the marshaling area. In this situation, the unit only checks to ensure no military shipping labels or RFID tags were damaged or lost during movement to the APOE.)
  - Verify that bar codes and RFID tags are properly attached to preclude loss or damage during further movement.
  - Verify that all military shipping labels are readable. (This procedure will require a TC-AIMS II hand held scanner.)
  - When required, check the battery life of the RFID tags. If low, replace the batteries. This procedure is manpower intensive, and if required, the marshaling area control element should be resourced with additional personnel and AIT hardware to accomplish the mission. If available, the regional ITV server on the WWW can be checked to verify battery levels at the last RFID interrogation location. This data provides the marshaling area control element a planning factor for how many RFID tags will need replacement batteries.
  - Compare AIT data storage device information to manifest data.
- Considerations for the Army command responsible for Marshaling Area operations:

- Using RFID interrogators (fixed and/or hand held) and scanners, capture the arrival and departure of all unit equipment and sustainment cargo at the marshaling area. If the marshaling area is on the airfield and this is the first place Army equipment is accounted for upon arrival, procedures must be established to report this information to GTN. The data must be visible in GTN within one hour of equipment arrival.
- Maintain a supply of RFID batteries for emergency replacement. (NOTE: The number and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)
- Assist units as necessary.

2-5. Any problems or deficiencies found with AIT data storage devices should be corrected by the unit before moving to the call-forward area. If the unit does not have the capability to make corrections, assistance should be provided by the supporting installation or designated unit supporting the deployment. After preparing their equipment for air movement, units will arrange vehicles and equipment in chalk order before movement to the alert holding area.

Alert Holding Area

2-6. The alert holding area is normally on the airfield and controlled by the DACG. The DACG will coordinate operations between the unit and the Air Force element (normally a Tanker Airlift Control Element [TALCE]) conducting aircraft loading. In the alert holding area the DACG (or other supporting Army element if a DACG is not present) has several potential AIT control measures and responsibilities. These control measures and responsibilities may not be assigned to all DACGs.

- Control Measures:
  - Scan the military shipping labels of all arriving and departing equipment for internal DACG accountability and control purposes.
- Responsibilities:
  - If the alert holding area is the first place where Army equipment is accounted for on the airfield, this arrival data must be passed to and visible in GTN within one hour of event occurrence.
  - Verify that the MSLs and RFID tags are properly attached to the piece of equipment or pallet to preclude damage or loss during air movement.
  - Scan all MSLs to ensure they are readable.
  - The supporting command may need to resource the DACG with the capability to check the battery life in all RFID tags and replace low batteries. This process is equipment and manpower intensive and must be resourced in advance of the requirement. This procedure will require that DACGs (or the Army element responsible for the alert holding area if a DACG is not present) maintain an on-hand supply of RFID batteries during force projection operations. While RFID is not normally used by Air Mobility Command to process equipment at an APOE, RFID may be a critical aspect of the Supported CINCs ITV plan. RFID tag functionality must be maintained to ensure ITV is achieved as the equipment passes through the RSO&I process. (NOTE: The number

and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)

2-7. Any deficiencies noted should be corrected by the unit before the equipment is moved to the call-forward area. This is the last place where Army AIT deficiencies can be corrected prior to air movement. AIT functions in the alert holding area must be balanced against the deployment timeline and aircraft departure. Decisions not to correct AIT deficiencies are made at levels above the Army units controlling and transiting the alert holding area.

Call-Forward Area

The call-forward area of the airfield is the location where the joint inspection of equipment is conducted and all manifests are reviewed for accuracy. The call-forward area is under the control of the DACG (or designated Army element). The unit and the Air Force element conduct a joint inspection of all equipment to ensure it is properly prepared for airlift. The unit, with assistance from the DACG, corrects all deficiencies found during the joint inspection.

Ready Line/Loading Area

The ready line/loading area is under the operational control of the Air Force. The DACG passes control of Army unit equipment to the Air Force at the ready line. The Air Force ensures that the aircraft is loaded properly. The Air Force Air Mobility Command (AMC) sends aircraft departure and ITV data to the Global Transportation Network via GATES/R-GATES within one hour of event occurrence.

SECTION VI – SEAPORTS OF EMBARKATION (SPOE)

GENERAL

SPOE operations cross inter-Service boundaries as equipment loads on strategic transport for overseas movement. The primary organization responsible for SPOE operations is USTRANSCOM's Transportation Component Command (TCC), Military Traffic Management Command (MTMC). MTMC is the military single port manager for all common-user water terminals. Also operating in the port complex will be Military Sealift Command (MSC), the port support activity, and the unit. Other possible operators at the port are civilian port managers and operators, and possibly, Army port operators (7th Transportation Group, or a reserve composite transportation group). Depending on the location, there may also be an Army Port movement control team. MTMC, as the DoD designated single port manager for all worldwide common user seaports, coordinates operations between Army units and MSC. MTMC will also coordinate all activities with the civilian port authorities and operators.

Unit equipment transiting a SPOE will generally pass through two primary areas before vessel loading; a marshaling area normally located just outside the port and a staging area located within the port. Depending on the size of the operation and the amount of unit equipment passing through the SPOE, a marshaling area may or may not be established. The primary purpose of a marshaling area is to provide a location near the port complex to assemble unit equipment and sustainment cargo and make final preparations for ocean shipment just before entering the port. Marshaling areas are often established when the volume of material moving to the port exceeds internal port

capabilities. In CONUS, FORSCOM has designated supporting installations to provide marshaling area and port support activities to MTMC terminals. In OCONUS operations, the theater commander establishes a similar relationship with MTMC.

AIT PLANNING CONSIDERATIONS AT THE SPOE

MTMC will pull movement data from JOPES in the form of a TPFDD extract. The Integrated Booking System (IBS) TPFDD extract program requires two data files to declassify projected/planned cargo requirements, namely a validated JOPES TPFDD file and a Type Unit Characteristics File (TUCHA). This allows IBS the functional capabilities to monitor, manage, analyze, and report on unit movements. Additionally, to ensure proper and efficient booking operations, IBS interfaces with other systems via electronic data interchange (EDI) and electronic media. Unit equipment moves to the port based on MTMC port call messages. The port call messages are developed after viewing the appropriate TPFDD and then coordinating with MSC for available vessels. Port call messages provide an earliest and latest unit arrival date at the port complex to facilitate vessel loading and to meet TPFDD requirements. The primary use of AIT in the port complex is to capture information for ITV reporting and internal control. Both MTMC and the port support activity will use AIT to capture the movement of unit equipment through the port complex. AIT can also be used to locate RFID tagged unit equipment that is in the port area.

The port support activity (PSA) and MTMC elements operating in the SPOE will have a limited capability to verify data on AIT media and a limited capacity to make corrections. Deploying units should not expect the SPOE to have a capability to properly label and tag their equipment. This is a unit and installation function.

Similar to airfields, PSAs from TO&E cargo transfer companies will receive TC-AIMS II and associated AIT based on the TC-AIMS II distribution plan. Ad hoc port support activities will not be issued TC-AIMS II as part of the fielding plan. Supporting installations must plan for this shortage and coordinate the issue of TC-AIMS II and associated AIT from internal assets or request external resources if the PSA is assigned AIT tasks.

MTMC will use RFID interrogators at port gates to capture the arrival of tagged unit equipment at the SPOE. This data will be sent to the Global Transportation Network through a regional ITV server. For non-tagged equipment, MSLs will be scanned, data input to WPS and then passed to GTN. Where possible, hand held scanners will be linked to the WPS database via Radio Frequency Data Communications (RFDC). Where RFDC is not feasible, data will be scanned and stored in the HHI for later batch downloading to the WPS database. This includes the final stow location of unit equipment aboard the vessel which is used to prepare the final ships manifest. Below is a sample listing of locations where AIT interrogators/readers could be established to assist in data capture and internal port control: (See Figure 4 – 3 for a notional diagram of a SPOE with AIT/AIS considerations depicted.)

- At unit equipment and sustainment cargo arrival gates. (RFID)
- At the marshaling area entrance and exit. (bar code) [PSA asset]
- At the container consolidation point. (bar code) [PSA, or the organization charged with consolidation requirement]
- Port staging area entrance and exit. (bar code)
- At the air-to-sea interface site, if one is established. (bar code)
- At the barge off/on load site. (bar code)
- HAZMAT staging area. (bar code)
- Ship loading ramp and lift-on/lift-off (LO/LO) locations. (bar code)

- MTMC will normally use hand held bar code scanners to scan the final stowage location of the unit equipment aboard the vessel. This data is used to prepare the final ships manifest and to verify the final stow location for each piece of equipment loaded on the vessel.

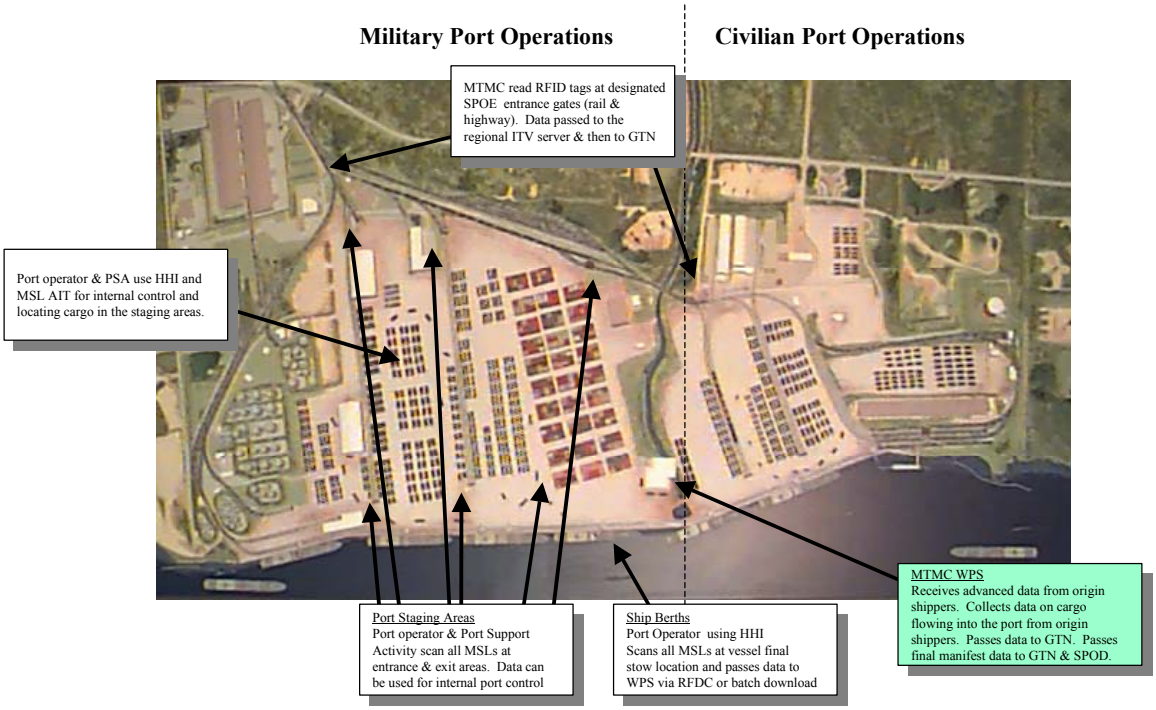

Figure 4 – 3 Notional SPOE with AIT/AIS Infrastructure Considerations

Care must be used when establishing the location of fixed RFID interrogators. The interrogator must be properly positioned to capture the arrival and departure of all unit equipment moving past its location, while at the same time, not interrogating tags already staged. A RFID interrogator located too close to RFID tags in the staging location can query tags constantly and drain the tag batteries before the equipment is loaded. This creates problems for nodes later in the RSO&I process as the tag will not respond to interrogator queries until the batteries are replaced.

Data collected by AIT (bar code and RFID) will be passed to GTN and WPS. MTMC has one hour to report POE arrival of unit equipment by WPS to GTN, and four hours to report POE arrival of sustainment cargo.

MARSHALING AREA

Not all deployments require the establishment of a marshaling area at the SPOE. If a marshaling area is established it is normally run by the supporting installation or area support group whose geographical area of operation controls the area around the port complex. If no MACOM or theater ITV plan is established detailing SPOE responsibilities, prior planning and coordination should be established before deployment operations begin. MTMC and the command responsible for providing the marshaling area should develop a Memorandum of Understanding (MOU) or Inter-Service Support Agreement (ISSA), detailing the operations at the marshaling area and how they will support port operations. The key AIT considerations (based on time available and AIT preparation completed at origin/home station) at the marshaling area are:

- Capturing the movement of all unit equipment and sustainment cargo arriving and departing the area.
- Verifying AIT data storage devices while making final preparations for sealift. Units should verify all AIT data storage devices as follows:
  - Is the AIT data storage device properly affixed to the piece of equipment to avoid loss or damage during movement?
  - Is the AIT data storage device readable?
  - Does the information on the AIT data storage device match the equipment information in TC-AIMS II?
  - If required, check the battery life in RFID tags. If low, replace the batteries. This procedure is manpower intensive. If it is a required task, the marshaling area control element should be resourced with additional personnel and AIT hardware to accomplish the mission. If available, the regional ITV server on the WWW can be checked to verify battery levels at the last RFID interrogation location. This data can give the marshaling area control element a planning factor for how many RFID tags need replacement batteries. (NOTE: The number and type of replacement batteries required should be also based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)
- Units should correct problems found with AIT data storage devices. If the unit is not located in the marshaling area, the organization operating the marshaling area should make these corrections.

PORT STAGING AREA

The staging area is the final location where equipment is assembled prior to loading the vessel. Equipment is usually lined up in the order that it will be moved onto the ship. MTMC and the port support activity will both operate in the staging area. The port support activity is in direct support of the port operator. The following are functions that MTMC or the PSA may perform in the staging area.

- Scan or interrogate all unit equipment and sustainment cargo as it arrives and leaves the staging area.
- Make a final check of AIT data storage devices to ensure they are readable and properly affixed.
- If required, and not being performed at a port marshaling area, check the battery life in RFID tags. If low, replace the batteries. If the PSA is assigned this task, it must be resourced with the necessary personnel and AIT hardware to accomplish the mission. If available, the regional ITV server on the WWW can be checked to verify battery levels (low battery report) at the last RFID interrogation location. This data can give the PSA a planning factor for how many RFID tags must be located and batteries replaced.
- Produce new AIT data storage devices for any pieces of equipment that have damaged, inaccurate, or missing tags or labels. There should be limited AIT data storage device corrections required at this point. Deploying equipment has received two to three AIT checks prior to arriving at the port staging area. (Note: For RC direct and modified

deploying units the port staging area may be only the 2nd location where AIT data storage devices have been checked. There is the potential to make more AIT data storage device corrections for these units and this requirement should be planned for in advance of equipment arrival.)

VESSEL LOADING

MTMC will control all equipment departing the staging area for vessel loading. Normally the equipment will be scanned at the final stowage location. After scanning, the data will be passed to the Worldwide Port System. WPS will then use an EDI transaction and send the final ships manifest to the Global Transportation Network and the SPOD WPS AIS. For unit movements, this data must be visible in GTN within one hour of ship departure. For sustainment shipments, that data must be visible in GTN within four hours. MSC reports ship departure from the port complex.

AIT USE TO CAPTURE PASSENGER MOVEMENTS AT SPOES

2-8. A final consideration for AIT use at SPOEs is a plan for the capture of personnel movements by ocean transport. There are differing scenarios where this contingency can occur:

- Large-scale mobilization and the use of passenger ships.
- Soldiers moving on Navy ships (similar to the USMC).
- Self-deploying US Army Watercraft.
- Supercargoes accompanying Army equipment.

2-9. There are several options that planners should consider for using AIT to capture the movement of Army personnel through water terminals.

- An ISSA could be established with MTMC to ensure that a MTMC element has TC-AIMS II available at SPOEs where a large number of Army personnel are going to deploy.
- Develop an ISSA with the Navy to use their TC-AIMS II system to capture the movement of Army personnel deploying on Navy vessels.
- Equipping the port support activity TC-AIMS II system with Smart Card read capability to capture movements. This option assumes that the PSA has a TC-AIMS II capability.
- Ensure self-deploying Army watercraft use their battalion level TC-AIMS II system to capture and report their personnel movement.

SECTION VII – RAILHEADS

2-10. For those OCONUS units deploying by rail, the following activities may involve AIT as part of the deployment process:

- Sequence loads for rail spurs. The ASG/BSB develops and publishes the rail load plan based on the TPFDD and corresponding UDLs. UMOs, or other unit representatives ensure AIT data storage devices are accurate (MSLs and RFID tags).

- Once in the staging area, the UMO or MCT personnel will use TC-AIMS II to conduct a final check of AIT data storage devices to ensure they are accurate and properly attached. RFID batteries are checked and replaced as necessary.
- The unit uses TC-AIMS II to provide documentation for rail transport to the ASG/BSB responsible for railhead operations. The ASG/BSB scans/interrogates arriving equipment AIT data storage devices (MSLs and RFID tags) and verifies the collected data with advanced movement data provided by the unit.
- The movement control element, or TSC support element captures equipment departure from the railhead by scanning/interrogating departing equipment AIT data storage devices (MSLs and RFID tags). This data is then reported to GTN in accordance with the applicable DoD AIT Implementation time standards (2 hours for inter-theater sustainment movements, 1 hour for unit movements).
- For passenger movements, the MCT or designated TSC unit scans the Smart Card of all soldiers to verify train manifest data. Once the train departs, this information is passed to GTN for ITV.

Chapter 5

RECEPTION, STAGING, ONWARD MOVEMENT, & INTEGRATION

Reception, Staging, Onward Movement, and Integration (RSO&I) often presents the most difficult challenges in the force projection processes. During the port to foxhole phase theater RSO&I facilities often lack the world class support infrastructure deploying and supporting forces had available during the fort to port phase. Deploying units and their equipment can backlog at ports of debarkation because of an inability to clear terminals efficiently. In addition to generally less capable port facilities, commands operating PODs have historically been unaware of some inbound equipment or cargo. The lack of asset visibility slows the reception process and chokes port capabilities. Additionally, the inland transportation infrastructure supporting onward movement is often less capable than the transportation network units used to deploy from home station. Main supply routes may fill to capacity as Army, Joint, and multi-national forces compete for limited transportation assets that are often supporting normal host nation traffic. AIT is a powerful enabling tool that can provide commanders and theater logistics elements ITV and force tracking information. This information can enhance theater RSO&I management capabilities and enable efficient reception and processing of units and equipment as they flow through the RSO&I process.

This chapter is divided into five sections. Section I discusses RSO&I planning considerations. Section II addresses operations at the theater ports of debarkation, including Army prepositioned afloat stocks. Section III discusses staging operations, to include Army prepositioned-land stocks. Section IV addresses onward movement operations, and Section V discusses integration at the tactical assembly area.

SECTION I – RSO&I PLANNING

GENERAL

RSO&I operations normally pass through the strategic, operational, and tactical levels of war as units and equipment move from ports of debarkation to the tactical assembly area or other designated integration locations. Successful ITV during the RSO&I phase is heavily dependent on deploying and supporting commands having fulfilled their AIT and AIS requirements before units and equipment depart the POEs. Once forces and equipment arrive in theater, visibility generally becomes more difficult due to diminished communications, transportation, and information infrastructure capabilities.

RSO&I planning requires an awareness of everything that affects the RSO&I operation. This includes theater infrastructure, TPFDD development, and integrated, timely, and reliable communications. RSO&I operations are under the command and control of the Joint Forces Commander. The JFC J4 (specifically the Joint Movement Center, if established) has a responsibility to produce and publish a theater ITV plan. The JFC may also appoint one of the Service Component Commands (e.g., ASCC) as the executive agent for developing the plan. Theater

reception and distribution is planned at the joint level based on the joint nature of force projection operations and the requirement to coordinate with USTRANSCOM and other supporting commands.

The Service components develop their supporting plans using the joint reception, ITV, and movement plans. The Army Service Component Command G4 is responsible for Army movement planning to include the ASCC supporting ITV plan. As part of this plan, a Theater Support Command (TSC) will normally be responsible for executing Army RSO&I operations and support to sister Services under the Wartime Executive Agency Program (WEAR). The WEAR program is discussed in more detail at Appendix E.

AIT PLANNING IN RSO&I

Force deployment requires an in-theater support infrastructure that is capable of executing RSO&I operations, sustaining the operation, and then redeploying the force. Recent operations in Somalia, Haiti, Bosnia, and elsewhere demonstrated a need for the establishment of adequate support infrastructures in austere environments or where inadequate or no infrastructure exists. A key TSC planning responsibility is developing, in coordination with the ASCC/ARFOR staff and functional commands, an in-theater distribution plan. During predeployment, the support operations staff of the designated TSC, in conjunction with the ASCC/ARFOR and JFC staffs, refines the plan for the logistics preparation of the theater (LPT). The LPT plan is essential to the overall development of a comprehensive distribution plan and the configuration and sequencing of CSS forces in the TPFDD. The LPT should include the Army portion of the theater ITV plan and the makeup of the Army theater force-opening package (TFOP). The TFOP is the Army mechanism to provide the required mix of CSS and other logistics elements necessary to accomplish initial reception, onward movement, and theater distribution tasks.

The TFOP is a modularly configured, early entry, multifunctional support task force comprised of CSS and selected CS modules. The JFC may also elect to include support cells from Army Materiel Command, the Army Medical Material Agency, Defense Logistics Agency, Military Traffic Management Command, and any other joint agency that has a critical mission in the force projection operation. As the theater matures, the TFOP mission will eventually be consumed by the TSC or any separate functional commands/support organizations that the JFC/ASCC establishes to meet evolving support requirements.

Theater entry operations may be opposed or unopposed. In unopposed operations, the TFOP executes the support mission according to the LPT developed during predeployment planning. The following AIT considerations and support requirements should be addressed in the LPT and implemented when the TFOP arrives in the theater:

- Coordinate interface of theater AIT and AIS with USTRANSCOM TCC elements at strategic ports of debarkation to assist capture of arrival and departure data for units, personnel, and equipment at these facilities.
- Establish the in-theater communications and power capabilities based on the LPT and on-the-ground assessment.
- Use AIT to collect information on units and equipment moving through theater staging bases areas. Transfer the data to GTN.
- Use AIT to enhance the process of drawing Army Prepositioned Stocks and capturing data on the movement of those units to the staging base.
- Use AIT to collect movement data at designated transit points.
- Employ satellite tracking during onward movement based on the LPT and on-the-ground assessments.

- Capture data on the arrival of units and equipment at the TAA and then close records in ITV systems.
- Establish alternate procedures for AIT data collection if there are Host Nation AIT constraints imposed.
- Implement planned security measures to safeguard AIT and AIT data transfer.

In opposed entry operations AIT has limited utility for the force-opening package. Force opening will be a tactical operation and the JFC will likely use tactical systems to monitor the progress of this phase of an operation. Once a lodgment is secure, AIT can be employed to capture the arrival and movement data of follow-on forces and sustainment cargo. The same considerations that were identified for an unopposed operation are applicable to an opposed operation after the lodgment is secure.

SECTION II – RECEPTION AT THEATER PORTS OF DEBARKATION

GENERAL

5-1. Reception is the process of unloading personnel and materiel from strategic transport, marshaling the deploying units, and then transporting them to staging areas or other initial destinations in the theater. Theater ports of debarkation can be world class facilities like the sea and aerial ports of northern Europe, or spartan locations with limited capability for receiving aircraft and ships. Aerial port capabilities are of particular concern in the early stages of an operation as virtually all equipment and personnel arrive in theater at APODs. After the first few weeks, surge sealift ships will arrive and a dramatic increase occurs in the amounts of unit equipment and sustainment cargo flowing into the theater. Airlift will continue as the primary means for deploying personnel and high priority material, but the bulk of unit equipment and the majority of sustainment cargo will arrive by sea.

5-2. Reception throughput is determined by two factors: reception capacity and clearance capability. All ports have limited processing and storage space. If arriving personnel and equipment are not quickly cleared from the port facility the complex may be unable to receive forces at a rate required to meet JFC force closure objectives. The proper planning and use of AIT can assist port managers in clearing the facilities to meet force closure timelines.

AERIAL PORTS OF DEBARKATION (APOD)

General

APOD operations, by their very nature, cross inter-Service boundaries. The arrival and departure data for all unit equipment, personnel, and sustainment cargo moving to and from the APOD must be captured in AISs. This data must be transferred to GTN and be visible in GTN within one hour of event occurrence. There are three primary organizations operating at the APOD that may possess AIT enabling tools; Air Mobility Command's Tanker Airlift Control Element (TALCE), the Army Port Movement Control Team (also referred to as an Air Terminal Movement Control Team, [ATMCT]), and the Army Arrival Airfield Control Group (AACG). Inter-Service support agreements or other arrangements should be established between these organizations detailing the use of AIT in APOD operations, if it is not clearly identified in the theater ITV plan. The arrangements must address each organization's AIT functions and responsibilities. Port Movement Control Teams and AACGs established by TO&E cargo transfer or cargo documentation elements will be equipped with TC-AIMS II and related AIT. Ad hoc AACGs will not have an organic TC-AIMS II capability. The organization responsible for providing these AACGs must plan to obtain TC-AIMS II and associated AIT from internal or external resources if the AACG is tasked with AIT responsibilities.

MACOMs, Army organizations responsible for providing airfield support to deploying units (e.g., Theater Support Command units, AACG) and Air Force units responsible for APOD operations need to address AIT considerations in advance of reception operations. Questions to consider are:

- How will the AACG use AIT to capture transfer of equipment and personnel from the TALCE?
- How can the AACG use AIT to assist with internal control of operations at the airfield?
- How will the departure of personnel and equipment from the APOD be captured in local AIS and reported to GTN?

AIT Planning Considerations at the APOD

Using AIT to capture the departure of Army units from the airfield to the theater staging bases requires detailed planning and prior coordination to support ITV and force tracking information requirements. Air Mobility Command TALCEs will report arrival at APODs to GTN using GATES/RGATES, or other Air Force communications systems, but procedures are needed to report departure of equipment moving from the APOD into the theater of operations.

Similar to APOEs, passengers and equipment usually do not travel through the same physical locations on the airfield. When planning AIT operations, operational procedures must be established to capture departure of both passengers and equipment from the airfield to the theater staging base or other designated location. Following is a list of ASCC/ARFOR AIT considerations for APOD inland clearance operations:

- How will the Army and Air Force establish an AIT infrastructure to capture the arrival and departure of all units and equipment?
- What automated information systems will be used to report the movement of personnel and equipment from the APOD to theater staging bases?
- What are the power and communications requirements necessary to support AIT operations, and what organization will provide these services?
- What are the procedures for obtaining frequency approval (allocation and site assignment) for AISs and AIT devices?
- Where will interrogators be installed to collect onward movement data from the APOD to the theater staging base (TSB)?

The TALCE reports arrival information to GTN within one hour of aircraft arrival. As equipment and personnel leave the aircraft, the TALCE releases control to the AACG. It is then the responsibility of the Army command working at the airfield to report movement as units and equipment leave the airfield and travel into the theater of operations. The theater command responsible for reception operations, in coordination with the Army unit responsible for operations at the APOD, decides when and where movement data is captured for departing units and equipment. The Army unit supporting APOD operations then coordinates with the Air Force element at the APOD for specific AIT/AIS requirements, infrastructure, and support. Departure data on units and equipment moving from the APOD must be reported to GTN within one hour of event occurrence.

Passenger Movements Through an APOD

Passengers arriving at an APOD may immediately board ground transportation for movement to the theater staging base, or they may process through a holding area before moving into the theater. It is the responsibility of the AACG, port MCT, or Army unit responsible for airfield clearance, to capture this movement and report the data to a regional or global ITV system and ultimately to GTN. Agreements must be established in advance of operations delegating which organization will have the responsibility for accomplishing this critical reporting task.

For passengers moving directly into the theater, the AACG, or Army element responsible for airfield clearance should scan all Smart Cards as soldiers board ground transportation. Once the transportation departs the APOD, collected data should be passed from the scanner to TC-AIMS II and then reported to GTN.

When personnel move to a passenger holding area before onward movement into the theater, the AACG (or other designated Army support activity at the APOD) should scan Smart Cards twice. The first scan is done when soldiers arrive at the holding area. This scan is used for internal accountability and control purposes by the AACG. The second scan occurs when soldiers board transportation for onward movement. This second scan serves two purposes: first, internal AACG accountability and control of who has left the holding area, and second, to provide data for ITV reporting. This requirement includes procedures for scanning Smart Cards of soldiers who will be driving or flying unit equipment to theater staging bases. Once the soldiers depart for the staging base, the collected data must be reported to GTN.

Unit Equipment Moving Through an APOD

Unit equipment moving inland from the APOD flows through a holding area and a marshaling area (if established) before movement to theater staging bases. The AACG is responsible for activities in the holding area. When established, the marshaling area is normally controlled by a theater support command subordinate unit. Equipment departing the APOD, from either the holding area or the marshaling area, must be reported to GTN within one hour of event occurrence.

Holding Area

The equipment holding area is usually located in close proximity to the aircraft unloading location. The holding area may be separated into several distinct physical locations (e.g., helicopter assembly area, equipment-holding location, pallet holding/reconfiguration area). (See Figure 5 – 1 for a notional APOD and AIT/AIS considerations.)

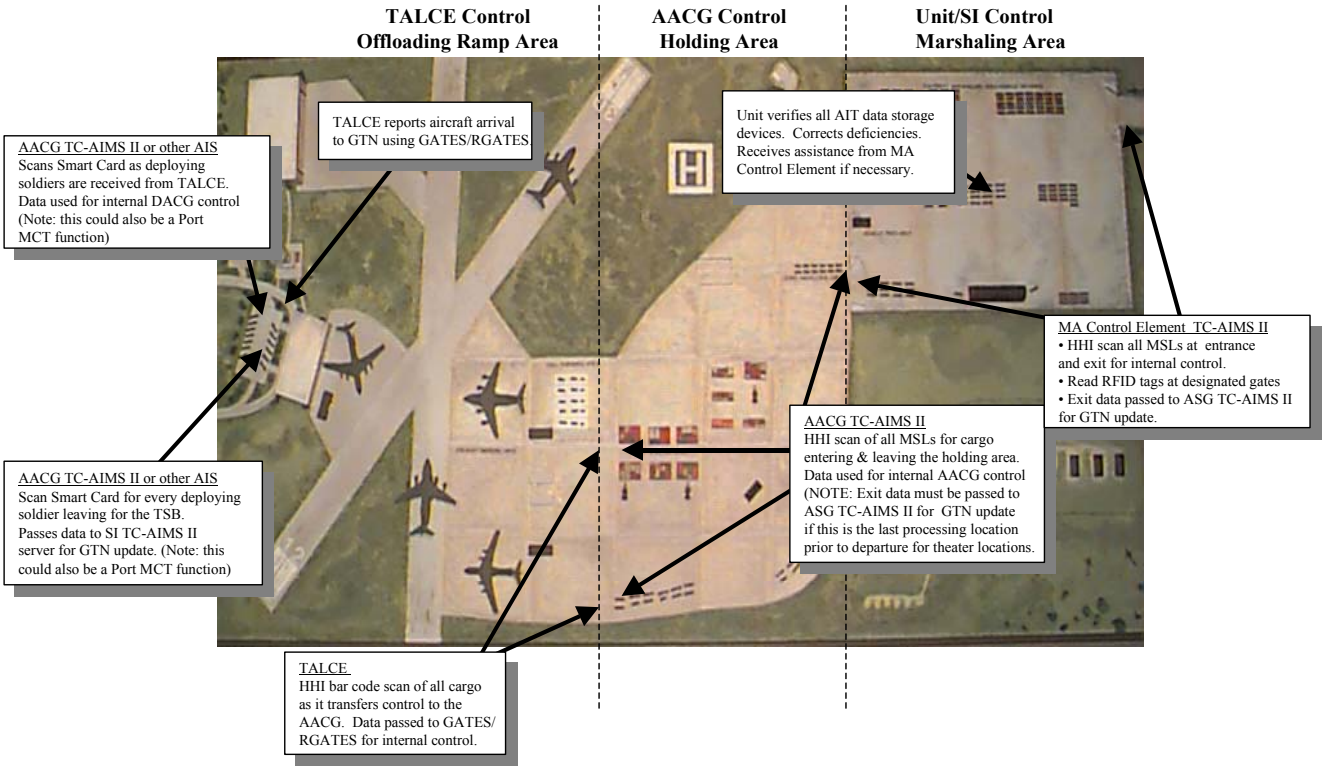

Figure 5 – 1 Notional APOD with AIT/AIS Infrastructure Considerations

The AACG (or other designated Army support activity at the APOE) has several potential AIT related functions in the holding area. Not all of these AIT activities may be performed depending on the theater or ASCC ITV plan, AIT resource availability, or time available prior to the deploying unit's scheduled departure. The key task that must be performed is reporting of equipment departure data to GTN, if this is the last APOD equipment processing location prior to departure for theater destinations.

- Scan/interrogate all AIT data storage devices (bar codes and RFID tags) for accountability and internal control.
- With unit assistance, correct AIT data storage device deficiencies.

- If tasked, replace RFID tag batteries as required. This function will require prior planning to ensure that the AACG has checked a web-enabled AIS (for example, the appropriate regional ITV server) to ascertain the battery levels associated with arriving RFID tags. Plans must also exist to ensure that sufficient RFID tag batteries are on hand and procedures in place for obtaining additional batteries if stocks are depleted. This responsibility may require additional personnel and equipment resources, as checking and replacing RFID tag batteries can be labor intensive and time consuming. (NOTE: The number and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)
- Using the TC-AIMS II AIT hardware, scan/interrogate all unit equipment as it leaves the holding area. This scan will serve two purposes. First, it provides a record to the TC-AIMS II workstation listing all the equipment leaving the holding area. Second, data captured from equipment loaded on ground transportation for movement into the theater can be used to verify ITV departure information that TC-AIMS II sends to GTN.

Marshaling Area

Two Army units generally operate in the marshaling area; the Army unit responsible for marshaling area control and the deploying unit whose equipment is being staged in the marshaling area. The deploying unit, with assistance from the designated organization to support/control the marshaling area, is responsible for preparing their equipment for movement to the theater staging base. Both organizations have potential AIT related responsibilities in the marshaling area. These activities may or may not be performed based on theater and ASCC requirements, available AIT resources, and time available. The key task that is required however, is the reporting to GTN of equipment departure from the APOD marshaling area to theater destinations.

- Unit responsibilities:
  - Ensure all equipment is properly labeled and tagged with AIT data storage devices.
  - Correct all AIT data storage device deficiencies. Units without TC-AIMS II capabilities request assistance from the supporting element controlling the marshaling area.
  - If pallets or multi-packs are reconfigured, ensure correct configuration data is captured in TC-AIMS II and reported to GTN. Ensure the newly configured items have accurate and readable AIT data storage devices (MSLs and RFID tags).
- Supporting Army unit controlling the marshaling area:
  - Use AIT scanners/RFID interrogators to capture the arrival of all unit equipment and personnel in the marshaling area. This data is for internal marshaling area control.
  - Use AIT scanners/RFID interrogators to capture the movement of all unit personnel and equipment as they depart the marshaling area for movement to theater staging bases. This data capture is for internal control and for reporting ITV departure data to GTN.
  - Assist the unit in correcting any AIT data storage device deficiencies and updating AISs.

Air-to-Air Interface

If an air-to-air interface is used, data on passenger and equipment arrival is captured the same as equipment or passenger arrival at the APOD. When the equipment and passengers move to the air-to-air interface site, they are processed using the same AIT procedures used for arrival at an APOE (see chapter 4).

SEAPORTS OF DEBARKATION (SPOD)

General

SPOD operations cross inter-Service boundaries as equipment is offloaded from strategic transportation and prepared for movement into the theater of operations. SPOD functions include off-loading vessels, moving equipment to staging areas, and then clearing the port complex. The Military Traffic Management Command manages all common-user strategic seaports. SPOD operations can range the full spectrum of operations from Joint Logistics Over the Shore (JLOTS) through commercial contract fixed-port supported deployments. The Theater CINC designated port operator can be a MTMC contracted port operator, a deployable active component transportation group, or a reserve component transportation terminal group.

The port manager establishes the workload for all Army elements within the port complex that support vessel discharge and inland movement. The port manager is responsible for reception and in coordination with the port MCT, moving equipment inland. The following organizations may operate in the seaport of debarkation:

- Military Traffic Management Command.
- Military Sealift Command.
- HN port authorities and port operators.
- Army Port Operator.
- Navy Cargo Handling and Port Group (NAVCHAPRG) or USMC Landing Force Support Party (LFSP). (These elements may be operating at a joint water complex if no Army or MTMC contracted port operator is present.)
- Army Port Support Activity.
- Theater and HN inland transportation mode operators.
- Port Movement Control Team.
- Deploying units.
- Port security personnel.
- Local customs personnel.
- Army Material Command (Only for APS-3 operations).

MTMC (including the port operator under their control) and the port movement control team will possess AIT read/write capabilities. The port support activity should also possess AIT read/write capabilities. Similar to support at airfields, port support activities from TO&E cargo transfer companies will possess TC-AIMS II and associated AIT hardware based on the TC-AIMS II fielding plan. Ad hoc PSAs will not have an organic TC-AIMS II capability. Supporting organizations and commands providing ad hoc PSAs must plan for obtaining TC-AIMS II and associated AIT from internal or external resources, if the PSA is tasked with AIT responsibilities.

The following Army AIT considerations should be addressed for SPOD operations: (see Figure 5 – 2, a notional SPOD with AIT/AIS considerations)

- How will MTMC and the port operator establish an AIT infrastructure to capture the arrival and departure of all units and equipment? Normally MTMC will use RFID read at exit gates and internal port operations will use HHI to scan linear and 2D barcodes.
- How will AIT be used to pass data to the Worldwide Port System for internal control of port operations? The current MTMC plan is to have HHIs pass data to WPS via radio frequency direct communication (RFDC). IF RFDC is not available then MTMC will use batch download from the HHIs to WPS.
- What are the power and communications requirements necessary to support AIT operations and which organization will provide these services?
- Where will interrogators be installed to collect departure movement data? MTMC will select (with host nation approval if operating from a fixed port) road/rail gates to collect RFID ITV data on tagged unit equipment as it moves in to the theater of operations. Port operators, PSA personnel and mode operators must be aware of which gates are equipped with RFID interrogation capability and use only those gates when moving RFID tagged equipment.

Vessel Discharge

MSC reports vessel arrival at the port complex and then passes custody of the cargo to the port operator upon discharge. Normally the port operator will position personnel with a hand held interrogator on the vessel ramp to capture movement of equipment from the ship during discharge operations. For lift off operations or in-stream discharges, the port operator may elect to capture vessel discharge data at the location where the equipment comes ashore. This data capture, normally done with a hand held interrogator, is used to verify advanced manifest information and to provide internal port control information.

Port Staging Area

The port staging area is a location on the ground where equipment temporarily halts while awaiting inland transportation. The port staging area may be a single physical location or several different sites. Areas in the port where equipment could be staged include:

- Container staging area.
- Vehicle and equipment staging area.
- Helicopter service/staging area.
- HAZMAT staging area.

For internal control, the port operator may capture the arrival and departure of all equipment moving in and out of the port staging area. AIT readers/interrogators can be used to assist in this data capture. Strategically located RFID interrogators can capture the movement of all containers and unit equipment outfitted with RFID technology as that equipment exits the port complex. For operations where RFID is not a part of the theater ITV plan or for equipment not tagged with RFID, the port operators must scan the military shipping labels and pass the data to WPS.

The port operator, with assistance from the unit (if the unit is operating in the port complex) has several AIT related tasks in the port staging area:

- Verify that all unit equipment has a readable military shipping label.
- Correct all MSL deficiencies before moving the equipment to the theater-staging base. The decision not to correct AIT data storage device deficiencies should be approved at a level above the port operator. At this point in the deployment, port congestion may be viewed as a bigger problem then lack of AIT and ITV data.

Equipment Departure to Theater Staging Bases/

Other Theater Destinations

MTMC uses RFID interrogators at SPOD to capture the departure of tagged equipment. After data collection, the RFID interrogator passes information to a host computer which in-turn sends the data to the appropriate regional ITV server. The regional ITV server passes the data to GTN and other web-enabled total asset/visibility AISs.

For ports or deploying equipment not using RFID, port operators will scan military shipping labels. The MSL attached to the equipment is scanned as it is loaded on common user transport, or during staging operations just prior to convoy departure. WPS passes discharge and disposition data to GTN within established time standards.

The departure of self-deploying helicopters from the SPOD must also be reported. This can be accomplished by scanning the military shipping label just prior to final flight preparations. The captured data is passed to WPS and then reported to GTN when the helicopters depart the port complex.

If the theater ITV plan requires satellite tracking of certain forces or equipment from the SPOD to the TAA, the headquarters needing this capability must resource the PSA (or other designated command/activity) with the ability to install, test, and maintain satellite transponders. This includes satellite tracking for APS-3 equipment. A second option is to ensure that the designated equipment is loaded aboard, and moved by common user transports equipped with satellite tracking systems.

Historically, the number of RFID tags interrogated at the integration location or final destination has been significantly lower than the number of tags moving from origin during force projection exercises. This situation may occur because of lost or damaged tags, tags arriving through non-RFID outfitted gates, RFID interrogators being inoperative when tags pass, or low tag battery levels. If the number of tags not being interrogated becomes a problem as the force projection operation progresses, the theater CINC or ASCC may need to establish and resource an organization with the capability to solve RFID tag problems at the SPOD. This organization should possess the capability to produce new tags to include the ability to verify tag battery power levels and to replace batteries as required.

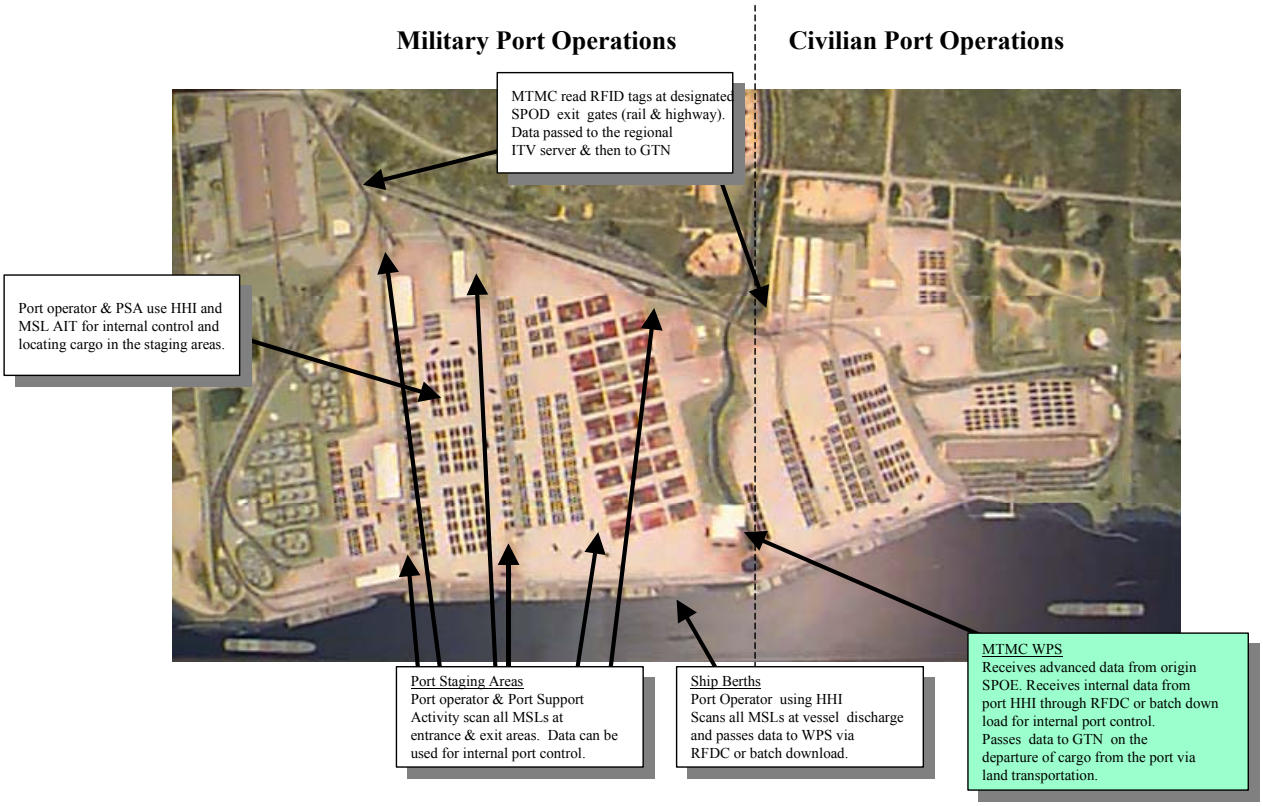

Figure 5 – 2 Notional SPOD with AIT/AIS Infrastructure Considerations

AIT Use to Capture Passenger Arrival at SPODs

A final consideration for AIT use at the SPOD is the capture of arriving and departing soldiers moving by ocean transport. There are differing scenarios where this contingency may occur:

- Large-scale mobilizations where soldiers will arrive by passenger ship.
- Soldiers arriving on Navy ships.
- Self-deploying Army Watercraft.
- Supercargoes accompanying Army equipment.

There are several AIT options that planners should consider to capture these movements. In all options, TC-AIMS II will be the AIS used to capture the movement of personnel through SPODs. The reception and processing plan must ensure that the TC-AIMS II system has the necessary AIT hardware to scan Smart Cards. MTMC does not have the capability to capture passenger movements. If large numbers of troops are deploying via ocean movement the JFC or ASCC will need to resource the port with a capability to capture and report passenger movements. Possible options include:

- The ASCC or TSC tasks and resources (personnel and AIS) the port movement control team to capture and report the arrival and onward movement of Army personnel arriving at the SPOD aboard ocean transport. This option will require Smart Card read capability for the port MCT TC-AIMS II system. Once movement data is collected, the port MCT passes the data to GTN using their TC-AIMS II system.

- The ASCC or TSC resources (including required personnel) the port support activity TC-AIMS II system with Smart Card scan capabilities and tasks the PSA to capture and report the arrival and departure of Army passengers arriving on ocean transport.
- For Self-deploying Army Watercraft report arrival in theater using the TC-AIMS II organic to the deploying watercraft unit's company or battalion headquarters.

Sea-to-Air Interface

Data on the arrival of equipment at the SPOD requiring onward movement by airlift is captured the same as any other equipment arriving at the terminal. When equipment and cargo are moved to the air terminal, it is in-processed using the same AIT procedures as cargo passing through an APOE (see chapter 4).

Army Prepositioned Stocks Afloat (APS-3)

APS-3 discharge operations require Army Material Command Logistics Support Element (AMC-LSE) involvement. As APS-3 stocks are discharged by the port operator, they are moved to a designated PSA holding area controlled by AMC-LSE. AMC-LSE will scan equipment bar codes for accountability at the holding area. After receipt in the holding area, the equipment passes through a Joint inspection station, a systems configuration station, and a maintenance quality assurance point before transfer to the deploying command (see Figure 5-3). As the equipment moves through each of the stations, the bar codes are scanned by the AMC-LSE for accountability and internal control. If there are bar code deficiencies, they are corrected by the AMC-LSE before transfer to the gaining unit. For detailed information on Army Pre-Positioned Afloat operations see FM 100-17-1.

Once APS-3 stocks are passed to the gaining unit, the deploying unit or other designated support element must use their TC-AIMS II system to create MSLs and RFID tags (if required) before the equipment moves to the theater staging base or other designated location. This source data must be passed to web-enabled ITV systems in order to have successful ITV tracking as these critical units move to the integration locations. As equipment is loaded on common user transport or staged for convoy movements, AIT hand held scanners should be used to scan the MSLs and collect data. As the equipment begins to move the data in the HHIs should be passed to an appropriate AIS (TC-AIMS II or WPS) and reported to GTN within the one hour time standard required by the DoD AIT Implementation Plan.

APS-3 stocks have no RFID tags while stored aboard the preposition afloat vessels and the AMC-LSE has no AIS capable of writing tags. If the theater ITV plan requires RFID capability, plans must be established to equip APS-3 stocks with the tags either at the unit staging area, or during the AMC-LSE handoff preparation phase. For RFID use with APS-3, the following factors should be considered:

- What organization will provide the RFID tags, tag batteries, and write stations?
- Which organization, (e.g., drawing unit, port operator, other ASCC designated unit) will be responsible for tagging designated equipment?
- Once tagged, how will the data be passed to GTN and the appropriate regional ITV server? Which organization has the responsibility (e.g., drawing unit, port operator, port MCT, or MTMC) for passing the data?

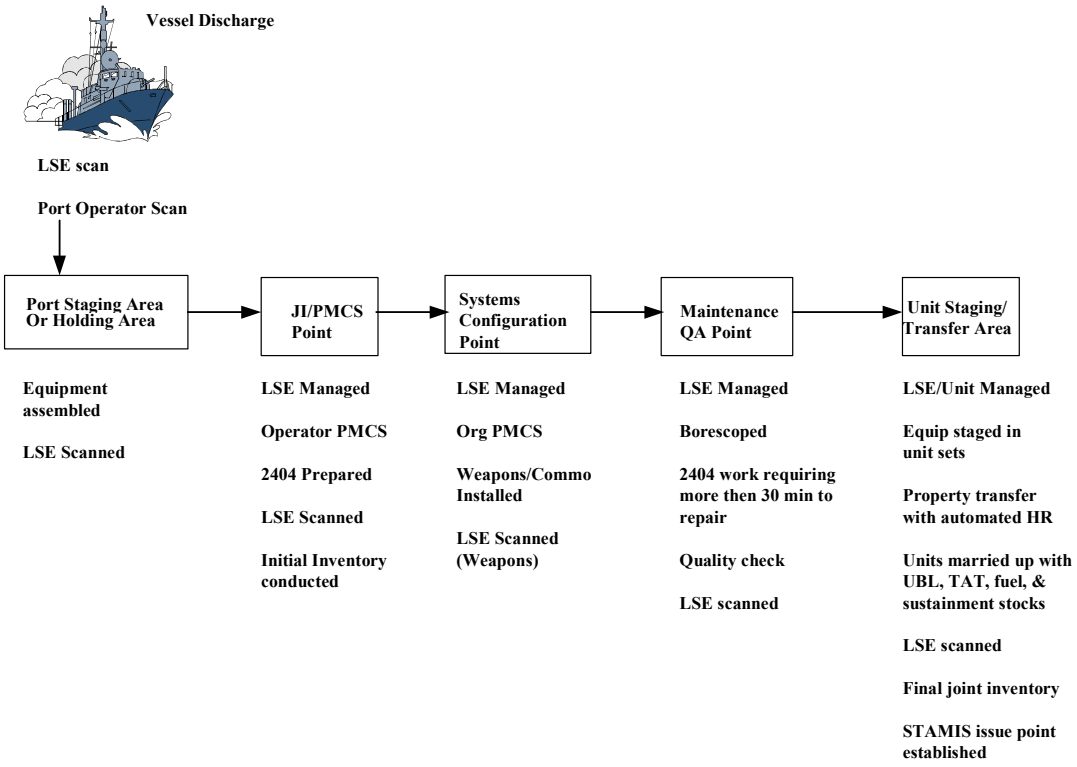

Figure 5 – 3 APS-3 draw procedures

SECTION III – STAGING

GENERAL

Staging is the process of assembling, holding, and organizing arriving personnel and equipment into units and forces, incrementally building combat power, preparing units for onward movement, and providing life support until the unit becomes self-sustaining. The theater-staging base is a location where soldiers reassemble with their equipment in the theater prior to movement to the TAA or other designated location. The establishment and operation of theater staging bases is possibly the most complex portion of the RSO&I process. Unlike installations, POEs, and PODs that are natural choke points, a theater-staging base can cover a large geographical area containing many staging locations within its boundary. In built-up urban areas around seaports, the required real estate to stage a large amount of equipment and soldiers at one geographical location may not be available. Staging further inland may provide adequate real estate, but could affect port clearance operations because of the finite number of common user transport vehicles and the increased turn-around times for these vehicles.

Man-made or natural barriers may separate individual staging locations within the TSB. Controlling the movement into and out of these locations requires detailed planning and effective execution. Considering the possible dispersion of the TSB and the normal planning factor of having one TSB for each APOD/SPOD pair, there may be no natural choke points to capture the movement of equipment and personnel arriving and departing the TSB.

Unit personnel will normally arrive in the TSB via bus or other ground transportation from the APOD. Cargo and equipment moving to the TSB arrives via commercial or military highway, convoy, rail, air, barge, or a combination of transportation modes. (See Figure 5-4 for AIT/AIS considerations at a notional TSB.)

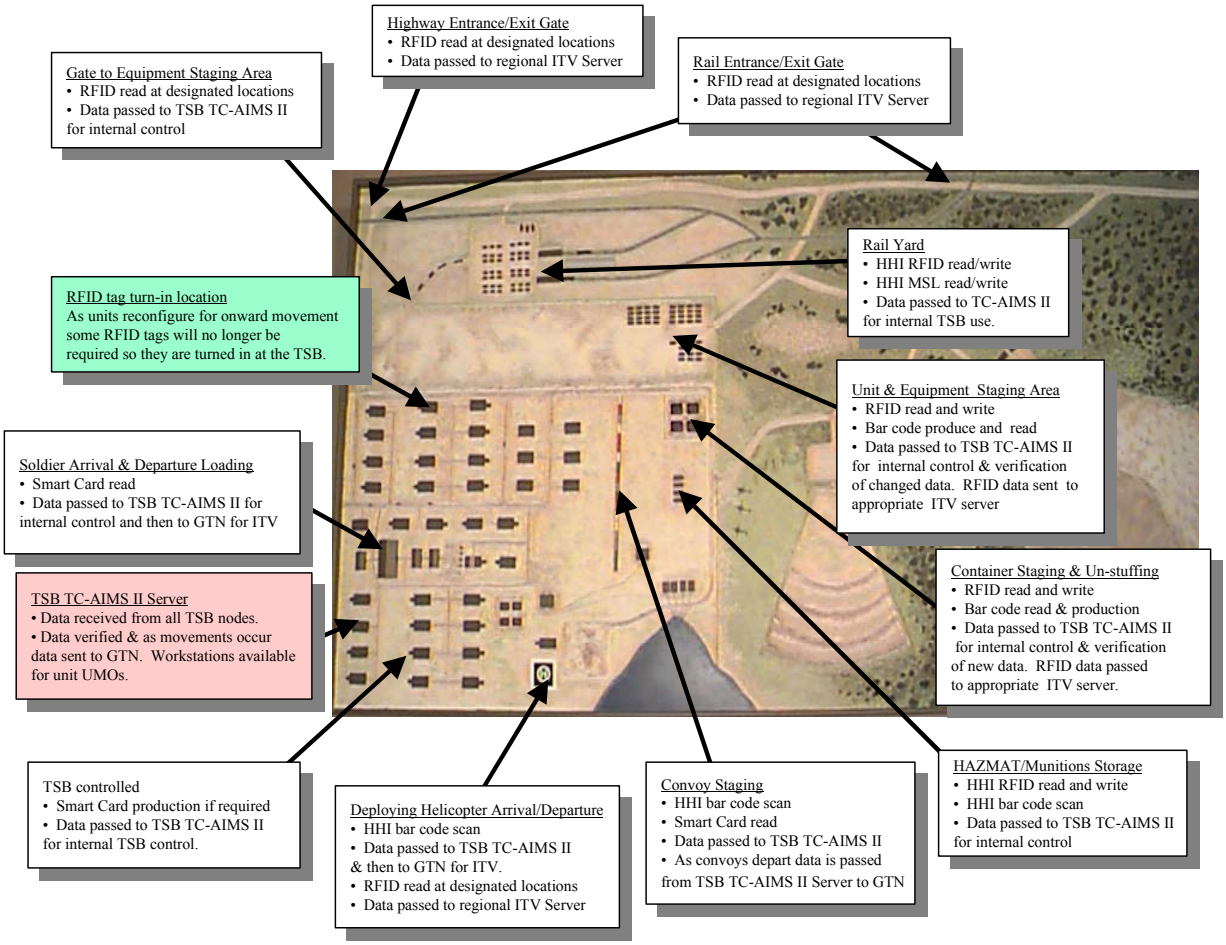

Figure 5 – 4 Notional TSB with AIT/AIS Infrastructure Considerations

TSBs will normally have multiple consolidation points that can be used to capture ITV data for arriving and departing equipment and soldiers. The number of geographically distinct staging locations within the TSB will determine the actual number of points where AIT interrogations/scans must occur. AIT use should be considered at the entrance and exit points for all of the following locations:

- Controlled entrance and exit gates to each staging location. (RFID)
- Passenger arrival and departure discharge and loading points. (Smart Card)
- Railhead (may support one or more staging location within the TSB). (Bar code and RFID)
- Helicopter Parking Area. (Bar Code and RFID)
- Unit Assembly Area/Vehicle Assembly Area. (Smart Card, bar code and RFID)
- HAZMAT and Munitions Storage Areas. (Bar code and RFID)

There will normally be two chains of command operating within the TSB. The Theater Support Command (TSC) organization responsible for operating the TSB, and the chain of command for the units staging at the base. The TSC organization will have overall C2 of the staging base and will provide support to staging units until they become self-sufficient. The planning, use, and implementation of AIT and associated AISs to capture the arrival and departure of equipment and personnel in the TSB are the responsibility of the TSC. The TSC chain of command is also responsible for reporting TSB arrival and departure information to GTN within one hour of event occurrence. TC-AIMS II will be the primary AIS for ITV reporting to GTN.

AIT OPERATIONS AT THE TSB

Each TSB should have read/write capabilities for all AIT devices expected to transit the staging base (RFID tag, bar code, and Smart Cards for unit movements and OMC for sustainment shipments from depots). Additionally the TSB must possess the AIS and communications infrastructure to report the arrival and departure of units within one hour of event occurrence. Both the deploying unit and the command responsible for operating the TSB have AIT related responsibilities.

- Deploying unit AIT responsibilities at the TSB include the following:
  - As the unit reconfigures equipment for movement, the UMO uses TC-AIMS II to capture the new data. For example, the crew of an Infantry Fighting Vehicle (IFV) may have stuffed all their equipment into a connex insert and then placed the insert in a container for the strategic portion of the deployment. At the TSB, the crew may open the connex insert and combat load the equipment on their IFV. After documenting the change in TC-AIMS II the UMO will print a new bar coded MSL or write an RFID tag to assist in further ITV reporting as the equipment moves forward to the TAA. The data reflecting the change in vehicle configuration and container contents must be made available to the unit's chain of command and to the TSC unit operating the TSB. This data must then be passed to GTN and other web-enabled AISs for successful ITV as the unit moves forward to the TAA or other designated integration location.
  - Prior to the departure the UMO verifies that all unit equipment have accurate and readable AIT data storage devices (bar code or RFID tag). If AIT data storage devices have been lost or damaged, they should be replaced before further movement. If the batteries in RFID tags are low, the batteries should be replaced. If the UMO does not have the capability to produce new AIT data storage devices, assistance should be requested from the TSB. (NOTE: The number and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)
- TSB command AIT responsibilities at the TSB include:
  - Collecting data on the arrival and departure of all units and equipment staging at the TSB. This arrival and departure data must be passed to the TSB TC-AIMS II system and then to GTN within one hour of event occurrence.
  - Assist the unit with AIT responsibilities beyond the unit's capability.
  - If the theater ITV plan requires satellite tracking of certain forces or equipment from the TSB to the TAA, the TSB or other organization designated by the supported CINC or ASCC must be equipped to install, test, and maintain satellite transponders. A second

option is to ensure that the designated equipment is loaded aboard and moved by common user transports equipped with satellite tracking systems.

Deploying force commanders in the TSB will have to make decisions about damaged and missing AIT data storage devices and changes in shipping configurations that affect these devices. They will also have to consider the time needed to correct/update AIT devices to provide additional ITV and force tracking data against force closure requirements. At some point in the RSO&I process the time required to update AIT data storage devices may be outweighed by the need to close the unit into the TAA or final destination. Decisions not to correct AIT data storage device deficiencies should be made at the ASCC level after coordination with the deploying command and the TSC.

Depending on the theater RSO&I plan, the unit may move to the TAA by tactical road march. If a tactical road march is not conducted, wheeled vehicles normally convoy, helicopters fly, and tracked vehicles go by barge, rail or, highway transport to the TAA. It is essential that ITV and force tracking reporting not end at the TSB. The JFC needs to know the status of units moving out of the TSB, and an estimated time of arrival in the TAA. As units move forward from the TSB, operational or security reasons may require that their movements be rerouted or stopped. If the AIT and AIS responsibilities were correctly performed, forces moving between the TSB and TAA can be quickly located and diverted or stopped en route as dictated by mission, enemy, terrain, troops, and time available (METT-T) considerations.

Other AIT Considerations at the TSB

As units reconfigure in the TSB, RFID tags, satellite transponders, and OMCs used to this point in the deployment flow may not be needed for the onward movement phase. (For example, a RFID tag on a container of unit equipment that is opened and emptied at the TSB will no longer be needed for onward movement). Based on theater guidance, procedures should be established by the TSC to account for and return these AIT data storage devices to designated organizations, or to use them in the theater distribution operation. In addition, in-transit visibility records for those movements ending in the TSB must be closed out so that valuable assets are not wasted. (For example, if the RFID record is not closed for the container cited earlier in this paragraph, movement agencies would believe that the equipment is still consolidated at the TSB and not moving with the unit.)

ARMY PREPOSITIONED STOCKS – LAND (APS-LAND)

General

The Army has strategically located combat sets of equipment on land in potential crisis locations around the world. In contingencies or exercises units will deploy to the theater and draw the equipment in preparation for operations. For a detailed discussion of Army Pre-Positioned Land operations see FM 100-17-2, *Army Pre-positioned Land*. There are two basic types of "draws" for APS stocks – emergency and administrative. The fundamental difference is time. In an emergency draw no force tailoring is conducted and entire sets are drawn and taken to the theater staging base as soon as the equipment is ready. Inventories and maintenance checks are performed and reconciled within ten days of the draw. These actions may occur at the TSB or after the unit has moved to the TAA. For administrative draws, units are issued only the equipment they need. 100% inventories and preventive maintenance checks and services are accomplished before taking the equipment from the APS site.

The AIS supporting war reserve stocks is the Army War Reserve Deployment System (AWRDS). AWRDS is used to transfer property accountability during Army prepositioned-land operations. AWRDS uses AIT bar coding to collect equipment data and track and maintain changes in cargo configuration. The AMC-LSE element controlling each APS-Land site does not have ITV reporting capabilities or requirements, and cannot read or write RFID tags.

Units that are drawing APS-Land stocks are connected to the AWRDS system before deployment from home station. Upon alert notification, the unit downloads data files from the APS battle-book and creates its UDL using the updated information. If the APS-Land stock does not have all the equipment needed, the unit brings the shortage items with them.

AIT Use in APS-Land Equipment Draws

The UMO, or designated unit representative with a TC-AIMS II capability, should arrive with the advance party at the APS-Land draw site. As the advance party receives equipment from the storage location, the bar codes should be scanned to verify data that was uploaded in TC-AIMS II before departure from home station. After capturing the supply data the UMO or unit representative adds the transportation data and produces MSLs or RFID tags. After verification of MSL and tag data, TC-AIMS II can update the source data in the appropriate regional ITV server and in GTN. This is a critical process. Without the production of MSLs and RFID tags and the subsequent update of GTN, the JFC and ASCC commander will have no ITV of what may be the first force to arrive at the integration location.

A marshaling area will normally be established near the storage site. Units use the marshaling area to configure their equipment for movement to the TSB. Movement control teams coordinate the movement from the APS site to the theater-staging base for all modes of transportation.

Advance planning must be conducted to establish procedures to capture and report ITV data for the movement out of the storage location or marshaling area to the TSB. The deploying unit and supporting movement control element should both possess AIT capabilities at the draw location. Following are AIT considerations at the draw site:

- Which element (deploying unit or MCT) will be responsible for capturing ITV data and entering it into TC-AIMS II as unit equipment departs the draw location for the TSB? This same element should be responsible for passing the data to GTN.
- If RFID tags are required as part of the theater ITV plan:
    - What organization will provide the RFID interrogators, tags, batteries, and write stations?

- What organization is responsible for the interrogator network?
- Which organization (AMC-LSE or the receiving unit) will be responsible for tagging designated equipment and passing source data to the appropriate regional ITV server and GTN? (If the AMC-LSE is assigned this mission, it must be resourced with the hardware and software to accomplish this mission. The AMC-LSE normally does not have the ability to write RFID tags.)

- If the theater ITV plan requires satellite tracking of certain equipment or convoys from the APS-Land equipment draw site to the TSB, the AMC-LSE or other organization designated by the JFC or ASCC must be resourced to install, test, and maintain satellite transponders. A second option is to ensure that the equipment moves on common user land transport that is equipped with satellite tracking systems.

Data on APS equipment arriving at the TSB will be captured by AIT using the same procedures as any other unit arriving in the TSB. See paragraphs 5-39 to 5-47.

SECTION IV – ONWARD MOVEMENT

GENERAL

Onward movement is the process of moving units and accompanying materials from reception facilities and staging areas to the TAA or other theater destinations, moving arriving non-unit personnel to gaining commands, and moving sustainment materiel from reception facilities to distribution or storage sites. Personnel and equipment reassembled as combat-ready units must be moved to TAAs or other locations based on the JFCs priorities. If units are moved by common user transports, additional staging will be required once they arrive at the TAA or other designated locations. AIT interrogators/readers can be used to report ITV data of these units as they move forward. This provides the JFC the capacity to redirect movements based on METT-T requirements.

PLANNING CONSIDERATIONS

The requirement to report ITV arrival/departure information at selected locations (rest halts, transit points, checkpoints, border crossings) during onward movement is a JFC decision. There is no DoD requirement for reporting at these locations during this phase.

The TSC, with guidance from the ASCC, executes the onward movement of units, equipment, personnel, and sustainment cargo from the theater reception facilities and staging bases to the TAA or other destinations. For detailed discussion of onward movement, see FM 100-17-3, *Reception Staging, Onward Movement, and Integration*, Chapter 5, *Onward Movement.* Properly positioned AIT interrogators and the use of satellite tracking systems can collect near-real-time and real-time movement information on these movements. This provides the TSC and JFC the ITV and force tracking information needed to manage the onward movement and incremental build-up of combat power. The distance from the TSBs to the TAA, the LOC infrastructure, and enemy actions will all affect onward movement operations and should be addressed in the theater ITV plan.

The two primary means of providing ITV and force tracking of units and equipment as they move from the TSB to the TAA are RFID and satellite tracking. Bar code scanning is an available option but requires a temporary halt in the movement and increases the time necessary for units and

equipment to move from staging bases to the TAA. Additionally, bar code scanning can be manpower intensive and may not be feasible along rail and barge LOCs.

As units and equipment move along the highway, rail, or inland waterway LOCs, RFID interrogators are strategically located to capture data on the passage of equipment and units. Based on the LPT plan and ASCC guidance, the TSC positions RFID interrogators at selected transit points to capture data on the passage of RFID tagged equipment and units. This information is downloaded to supported AISs and can then be transferred to an appropriate regional ITV server and to GTN. RFID interrogators should also be positioned at any locations where units and equipment temporarily halt during movement. Possible LOC RFID locations include:

- Convoy Support Centers (CSC).
- Highway rest stops.
- Trailer Transfer Points (TTP).
- Designated transit points (highway, rail, and barge).
- MP or MCT checkpoints.
- International border crossing.

When selecting AIT interrogator/reader locations the following factors should be considered:

- Host nation frequency approval for the use of RFID data transfer and RFDC data transmission at each location.
- Security requirements at the interrogator location. Do to they address:
  - Physical security from theft, pilferage, and damage.
  - Operational security concerning enemy actions, jamming, and data interception.
- Power and communications resources supporting each interrogator location.
- Ability to transfer data to an AIS and the AISs ability to provide timely data to a regional or global ITV system.
- Maintenance and accountability of equipment at each location.

Selected vehicles and equipment may be monitored by satellite-tracking systems from departure at the TSB until arrival in the TAA or other designated location. Satellite tracking provides real-time positional data for force tracking and ITV reporting. With the onboard communication systems, the TSC can immediately redirect assets based on JFC directives, the changing tactical situation, or the need to manage and control the movements along the LOC.

SECTION V – INTEGRATION

GENERAL

Integration is the synchronized hand-off of units into an operational commander's force before mission execution. Two functions must occur before a unit can integrate into the force. One, the unit must become operational and mission-ready. Two, the unit must be absorbed into the force and be capable of communicating and receiving command and control from its higher headquarters.

As units and equipment close in the tactical assembly area, they move from operational level command and control to the tactical level. Their arrival should be captured by AIT devices and reported to TC-AIMS II and the appropriate CONUS/regional ITV server. TC-AIMS II and/or the CONUS/regional ITV server must then pass the data to GTN. AIT captured data will not provide

the JFC all the information needed for force closure, but it can provide information on what units, equipment, and cargo are in the TAA.

PLANNING AIT SUPPORT AT THE TAA

The LPT should address responsibilities and standard procedures for AIT use in the TAA. There are two organizations involved with AIT at the TAA; the tactical command headquarters and the theater level support command responsible for delivering material, units, and personnel to the TAA. As units and equipment arrive in the TAA, AIT interrogators/readers can be positioned to collect arrival data and report that data to regional and global ITV systems. Possible AIT locations are:

- Passenger arrival areas. (Smart Cards)
- Convoy arrival areas. (Bar code and RFID)
- Airfields within the TAA that will receive cargo, equipment, and passengers. (Smart Cards, bar code and RFID)
- Container staging areas, if established. (Bar code, OMC, and RFID)
- HAZMAT staging areas. (Bar code, OMC and RFID)

The objective of AIT use in the TAA is to provide a rapid means of capturing arrival data and passing that data to supporting AISs. The AISs should feed regional or global ITV systems that inform the JFC and Army C2 elements that the unit or equipment has arrived at the integration location.

A final consideration for AIT use at the TAA is the recovery of AIT data storage devices such as RFID tags, OMCs, and satellite transponder kits. Some deploying organizations are issued tags at origin and instructed to retain them through redeployment. Other tags and OMCs belong to organizations that shipped the cargo or equipment to the theater of operations. Satellite transponders may have been installed at origin or theater reception or staging facilities. The theater ITV plan or the ASCC should establish clear instructions for recovering these devices in the TAA and procedures for returning them to the logistics system for reuse/reissue.

CHAPTER 6
Sustainment, Retrograde, NEO, and Redeployment

In addition to deployments, there are other movement activities associated with a force projection mission. These activities can use AIT to improve operational procedures and increase the speed in which material and personnel are processed through the movement flow. This chapter is divided into four sections. Section I discusses the use of AIT in sustainment operations supporting the force projection mission. Section II addresses the use of AIT to assist in the management of retrograde shipments. Section III discusses the use of AIT to assist in the management of NEO movements, and Section IV addresses the use of AIT in redeployment operations.

SECTION I – THEATER SUSTAINMENT

Deploying forces carry limited sustainment stocks. As the first surge sealift ships arrive in theater, sustainment stocks must also begin arriving to support the incremental build-up of combat power in the region.

SUPPORTED CINC PLANNING AND EXECUTION RESPONSIBILITIES

As discussed in Chapter 5, the JFC J4 (specifically the Joint Movement Center, if established) has a responsibility to produce and publish a theater ITV plan. Theater reception and distribution is planned at this level based on the joint nature of force projection operations and the requirement to coordinate with USTRANSCOM and other supporting commands. The LPT planning process must also address sustainment movements and distribution. Using the directives from the joint command, the Service components develop their theater distribution plans for sustainment stocks. Normally the Army Service Component Command G4 will be responsible for Army reception and movement planning to include the Army's portion of the theater ITV plan. The plan includes the logistics organization responsible for executing the Army portion of the theater distribution plan. Based on the size of the operation this could be a TSC, a COSCOM, or a DISCOM organization.

Distribution Plan

Establishing and maintaining the distribution plan is the single most important aspect of maximizing throughput operations in the theater. Although the strategic-level theater distribution plan is formally prepared using JOPES, the support operations element of the TSC (or senior logistics organization if a TSC is not present) must prepare an Army theater distribution plan. Normally the plans branch of the distribution management center is responsible for the development of the Army distribution plan. The distribution plan explains exactly how the Distribution Management Center (DMC) will maintain asset visibility, adjust relative capacity, and control the flow of supplies, services, and support capabilities in the theater. The distribution plan is used by the ASCC/ARFOR and Corps commanders to execute Army theater wide distribution. The plan is developed as an appendix to the service support annex of the ASCC/ARFOR service support plan. It includes a series of overlays and a descriptive narrative that depict the layout for the architecture of the distribution system. The plan describes how units, materiel, equipment, and the CSS resources are to be distributed within the theater. It also portrays the interface of automation and

communications networks for gaining visibility of the distribution system and describes the controls for optimizing capacity of the system. It is continually updated to reflect changes in infrastructure, support relationships, customer locations, and extensions to the distribution system. For more information see FM 100-10-1, *Theater Distribution*, and FM 63-4, *Combat Service Support Operations – Theater Army Area Command*.

Strategic-level supply organizations (to include direct vendor delivery) provide timely responses to deploying unit requisitions for supplies and materiel. Whenever possible supply sources unitize cargo in single consignee packages. Sustainment cargo that is not unitized will move to a theater distribution terminal for further processing. Sustainment resources move through supporting APOEs/APODs, SPOEs/SPODs and are throughput directly to a unit's designated supply support activity (SSA), stock location, or to a distribution terminal for further action. Sustainment materiel designated for stockage normally bypasses distribution terminals and is throughput to the appropriate storage site. Future distribution systems have a target goal of 85% throughput for sustainment supplies with only 15% going to theater distribution centers for further processing.

Regardless of whether the materiel is throughput or direct delivery, certain AIS and AIT procedures must be followed. Similar to unit moves, the initial source data identifying the material must be properly entered in applicable AISs (e.g., AMS, SAAS-MOD, Standard Property Book System – Redesigned [SPBS-R]). Using this data, the origin supply location produces and attaches accurate bar coded MSLs, OMCs, and RFID tags to allow automatic capture of ITV data once the materiel begins to move through the sustainment pipeline. As the material departs the origin location, the supply and transportation data must be transferred from the local AIS to GTN within applicable time standards (i.e., air shipments – one hour, ocean shipments – four hours, in-theater shipments – two hours). The use of AIT data storage devices by origin shippers provides force projection managers two capabilities. It provides an automatic means of viewing detailed supply data, and secondly, it provides an automatic means of collecting ITV information as the material moves to its final destination. AIT is generally used by origin supply sources as follows:

- Origin supply sources use optical memory cards for automated manifest/packing lists. The shipping activity (depot or SSA) will use an HHI to read the bar-coded information on the individual material release order (MRO) as the items are placed in the multipacks. A transportation control number will be assigned for each multipack. This will establish the relationship between the document numbers of the items in the box and the TCN assigned to the multipack. This automated manifest/packing list information will be recorded on an OMC. The information will also be reported to a central TAV/ITV database for access by various managers. The OMC will travel with its multipack either inside the multipack or attached to the outside. The data on the OMC will be available at the consolidation and containerization point (CCP) as the multipacks are stuffed in containers, and at the ultimate SSA for receipt processing.
- Origin shippers will attach a RFID tag to the outside of each shipping container. This tag will be loaded with Transportation Control and Movement Document (TCMD) information for the container at the CCP. In addition to TCMD information (i.e., TCN, container identification number, ship-to address), the tag will include information about the contents of the container (stock numbers, document numbers, shelf life, hazardous materiel codes, and special handling requirements). For multipacks, the automated manifest/packing list OMC traveling with the multipack will be used as source data for the RFID tag. This ensures accurate data collection and processing at follow-on nodes, with no requirement for manual input. The OMC is used for receipt processing. The RFID tag is used for ITV, and can, in some cases, be used for receipt processing if the content data does not exceed the RFID tag memory capacity. The use of these AIT data storage devices for sustainment operations is discussed later in the "AIT in Support of Theater Distribution" section of this chapter.

EXECUTING THE THEATER DISTRIBUTION SYSTEM

To manage the RSO&I and sustainment supply flows arriving in the area of operations, a theater force-opening package is established to build the theater-level sustainment capability. The TFOP includes supply, transportation, personnel, maintenance, and medical modules. Other modules such as military police and rear area operations centers may be included based on METT-TC.

Theater Force Opening Package (TFOP)

The TFOP conducts operational and tactical level sustainment operations based on the LPT. As the theater matures, the TFOP may eventually transition to a Theater Support Command. Initial requirements of the TFOP includes the capability to:

- Acquire, build, repair, and/or maintain CSS facilities of the initial theater-level infrastructure. This includes PODs, distribution terminals, and storage locations for all classes of supplies.
- Establish operational-level supply, services, and soldier support locations; receive and store APS; and provide personnel accountability for filler, casualty replacements, and transitional personnel.
- Establish the initial ASCC/ARFOR theater-level distribution management capability.
- Establish the theater distribution transportation infrastructure.

Theater Onward Movement

TFOP transportation modules establish an onward movement and distribution capability. This includes the ability to:

- Establish and operate in-theater force/materiel tracking information management systems that provide and receive data to/from strategic/joint/ASCC ITV and TAV AISs. The TFOP modules install, as directed, RFID interrogators at distribution terminals, along LOCs, and at sustainment support nodes.
- Provide/Capture Data for In-Container/On-Pallet Visibility. The source data is first established at the depot, vendor, unit, or other source, usually in the supporting CINCs AOR. For developed theaters, source data capture requirements may also exist within the theater of operations. Visibility down to NSN, TCN, and requisition number level of detail must be maintained throughout the entire distribution process. This includes the unpacking and reloading of containers and pallets onto different transportation conveyances. AIT affords the opportunity to update databases, which provide visibility of shipments. This level of detail allows systems like ATAV and JTAV to provide line-item detail for materiel in-transit or in-storage.
- Provide Transition Node Visibility. This capability provides the JFC visibility of activities within the distribution system. Regardless of the number or types of nodes, the cargo identity and its physical location must be maintained correctly. Nodes are locations where cargo and units change from one transport mode to another or where transportation assets are off-loaded and containers/pallets are reconfigured for further distribution. The use of AIT at these facilities can greatly increase the ability to accurately capture changes in cargo configurations. These changes are then sent to AISs to provide accurate ITV information.
- Provide In-transit Visibility. The TFOP, and later the TSC must ensure the visibility of material moving through the RSO&I process from the time it arrives at the POD until it reaches its final destination. By establishing onward movement data collection points (primarily using RFID), and installing satellite tracking systems on select pieces of

equipment, the theater distribution manager can effectively provide in-transit visibility of sustainment stocks moving within the theater. In the future, MTS will greatly enhance this capability by providing a satellite tracking capability for military common user transport vehicles.

In-Theater Distribution Terminals

In a theater distribution system all resources are throughput from the POD to the unit or storage location whenever possible. The distribution hub is the activity at each echelon of support that manages this throughput operation. It includes all the functional capabilities associated with distribution at each echelon (Echelons above Corps [EAC], Corps, Division). When cargo cannot be throughput, it is moved to a distribution terminal for further processing.

Within a distribution hub, there are one or more distribution terminals for cargo. The terminals receive, sort, and unload containers for rapid distribution. The distribution terminal consists of a transportation cargo transfer element and a servicing MCT. Multi-consignee cargo and frustrated cargo goes to the distribution terminal to be broken down into single consignee shipments. The cargo then moves forward on a time definite delivery basis. The terminals also redirect cargo as required. Distribution terminals are connected with SSAs and other nodes of the system to form the hub. Distribution terminal operations include:

- Segregating, consolidating, manifesting, staging, and delivering cargo to customers over established routes according to a time definite delivery schedule.
- Receiving, repackaging, redistributing, and retrograding cargo.
- Preparing OMC and RFID tags for cargo as it is repacked to ensure TAV/ITV from distribution terminal to the ultimate consignee.
- Coordinating mode asset, pallet, and container arrival and departure, and providing timely cargo ITV reports to CSS databases.
- Reading source data automation of cargo arriving and departing the distribution terminal.

MANAGING TRANSITION NODE CAPABILITY

Theater distribution depends on timely and accurate information about the CSS situation. Collecting and managing this information depends on the capabilities of automated systems (including the associated AIT) and the supporting communications systems. AISs are used for the detailed, day-to-day processing of management information supporting CSS operations (see Appendix C for a brief discussion of each AIS used to support force projection). These AISs provide the detailed information needed for effective distribution management and are the essential source of CSS data for C2 systems. Specific theater distribution AIT applications support these AISs by providing an automatic means of collecting ITV and TAV data. Theater distribution AIT applications that are currently in use or anticipated in the future are described below.

- RFID interrogator networks can be established at storage area entrances and exits to capture materiel arrival and departure data. When linked to the proper AIS and appropriate regional ITV server, the RFID tags can provide ITV and automatic credit and debit transactions. This set-up can also perform remote and stand-off inventory functions if detailed data is written to the RFID tag at origin.
- Fixed and/or hand-held RFID interrogators can be used at various locations within the distribution system to quickly locate specific containers by container identification number or TCN. RFID tags and interrogators can also be used to identify the contents of containers without opening them.

- RFID interrogators can be placed at appropriate arrival and departure locations. This allows the supply and/or transportation AIS used at these locations to automatically receive updated date and time information when the tagged shipment arrives. This data will also be passed to the appropriate regional ITV server and then to GTN for ITV reporting. The AIS can be designed to check periodically on items within the range of the interrogators and to notify managers when the items have not been processed within the established timeframe. This capability can be employed at key locations in the distribution pipeline such as the CCP, SSA, or distribution terminals.
- Fixed or hand-held interrogators can be used to improve management of frustrated cargo at the staging area, distribution terminal, or trailer transfer point. Using the interrogator, the information on the RFID tag or OMC can be quickly and accurately uploaded to an AIS and the data entered into a local (or regional) database. The shipment can then be re-routed to the correct consignee with a new MSL, RFID tag, or OMC that is produced and attached to provide ITV and receipt data. (NOTE: When changes are made to a RFID tag, an updated MSL must also be created.) The new shipment data is then passed to GTN. This allows ITV tracking as the new shipment moves to its final destination.
- RFID interrogators can be used to automatically and remotely modify ship-to address, consignee, or other cargo disposition instructions. Additionally, interrogators located throughout the distribution system provide the capability to intercept and redirect shipments. The automated systems at the CCP, TTP, or distribution terminal (e.g., SARSS, SAAS-MOD, AMS) can be programmed to look for specific containers (or all containers addressed to a specific consignee). When the interrogator locates the container RFID tags, it can then modify the TCMD disposition instructions or other automated manifest documentation on the tags. When this capability is used, procedures must also be established for passing this new data to web-enabled ITV systems (e.g., GTN, JTAV, GCCS-A) to ensure accurate ITV data collection and reporting. (NOTE: When changes are made to a RFID tag, an updated MSL must also be created.)
- RFID tags can report their location to local users equipped with hand-held interrogators. This is particularly useful at busy or crowded sites such as staging areas or ammunition storage points. The desired item can be queried from the hand-held interrogator using NSN, document number, or generic name (such as "tire" or "barbed wire"). Only tagged containers with these items will respond. The "beeping" tags or the interrogator's location finding functions are then used to locate the container and the item.

Throughout the theater distribution pipeline, AIT hardware can be used to automatically capture the data associated with arrival, receipt, reconfiguration, packaging, and shipment of sustainment cargo. Properly packaging and attaching AIT data storage devices at supporting supply and service facilities facilitates throughput of cargo from POD arrival to final destination, thus alleviating the need to temporarily store, or reconfigure shipments. For sustainment cargo that must process through a distribution terminal, AIT can accurately and quickly collect the data on materiel as it is un-stuffed and then re-stuffed into other multipacks.

SECTION II – RETROGRADE OF CARGO AND EQUIPMENT

The movements of retrograde, to include maintenance evacuation of materiel through the distribution system, is accomplished in reverse order of sustainment movements. Retrograde materiel is consolidated at the lowest level SSA. It is then reported through the support operations channels to the TSC Material Management Center (MMC) commodity manager for distribution instructions using a source data AIS (e.g., AMS, SPBS-R, SARSS). The SSA packages and

documents retrograde items for shipment based on instructions received from the TSC MMC. After the items are packed the SSA writes optical memory cards and RFID tags to allow automatic data capture as the equipment flows through the retrograde pipeline. The TSC Distribution Management Center (DMC) retrograde transportation requirements are synchronized with onward movement/ sustainment transportation requirements to maximize utilization of transportation assets. The DMC coordinates retrograde of unit equipment and supplies with the Movement Control Agency (MCA), MMC, and other functional organizations/directorates as required. As the retrograde equipment moves back through the transportation system, the same AIT interrogators/readers used to capture deploying equipment information are used to capture retrograde movements. ITV of retrograde shipments must be visible in GTN within the same time standards as sustainment shipments. The standards are one hour if the materiel is moving by air, four hours if moving by ocean transport and two hours if traveling by surface transportation and remaining in the theater.

SECTION III – NONCOMBATANT EVACUATION OPERATIONS (NEO)

GENERAL

Noncombatant evacuation operations are conducted to evacuate civilian noncombatants and nonessential military personnel from a hostile environment or natural disaster site. The requirement for NEO mission support depends on the locality and the threat assessment. Within the theater, ASGs are normally tasked to plan and coordinate the NEO operation and subordinate BSBs actually perform the NEO mission. A TFOM may be tasked to assist the Department of State in cases of imminent or actual hostilities, significant civil disturbances, or natural and man-made disasters in locations where no permanent US military presence exists.

The ASG or BSB coordinates with the servicing MCT for transportation assets. (In some theaters, this function is performed by the TSC support operations directorate's transportation branch.) The ASG Personnel and Administration directorate assists with required documentation and record processing. In coordination with the ASG, the BSB controls and manages the assembly of all noncombatants. The EAC support command selects noncombatant-holding areas.

In theaters where there is a forward presence, a base support battalion may provide the nucleus and staff to conduct NEO for civilian, military personnel, and dependents that are authorized evacuation assistance. The BSB controls and supervises the complete administrative processing and logistical support of evacuees. It also maintains personnel accountability throughout the evacuation process. In theaters without a forward presence, the TFOP may be tasked to assist the State Department in evacuating US and Host Nation personnel authorized NEO support.

ACCOUNTING FOR NONCOMBATANTS

Echelons Above Corps (EAC) support commands and subordinate ASGs are normally responsible for ensuring noncombatants are transported to departure points for evacuation from the theater. The ASG or BSB will coordinate with the servicing MCT for transportation assets and arrange for the movement of evacuees to designated theater transfer points. The BSB maintains schedules and route plans for evacuation. They also coordinate preplanned HN transportation assets for evacuation.

The use of Smart Cards can assist in accurately capturing the departure of noncombatants from the theater of operation. There are two basic options for issuing Smart Cards to noncombatants in the theater.

- Produce Smart Cards when NEO packets are developed. Store the cards with the NEO packet for use in an evacuation.

- Produce the Smart Cards at the noncombatant assembly site as individuals arrive for evacuation.

Once noncombatants possess an accurate Smart Card, the card can be scanned as individuals move through the various processing locations and board transport for evacuation from the theater. The card scan can be used to create bus and air manifests and for internal accountability of noncombatants at each evacuation site. This information will provide NEO managers automated visibility of individual movements and will allow the managers to control the evacuation of personnel from the area of operation.

Buses and other transportation platforms, (rail cars, trucks) can be equipped with RFID tags, or satellite transponders. As NEO passengers board transportation assets, their Smart Cards can be scanned. This data, along with movement data can be used to populate the RFID tag. By associating the passenger data with the RFID tag number or satellite transponder number, the NEO managers can monitor the movement of noncombatants as they flow from processing sites to POEs.

SECTION IV – REDEPLOYMENT

GENERAL

Redeployment is the process of transferring a unit, an individual, or equipment from a deployed area to another area, or to another location within the area, or to the zone of the interior for the purpose of further employment. Army units redeploy in the following four phases:

- Recovery, reconstitution, and predeployment activities.
- Movement to and activities at POEs.
- Movement to PODs.
- Reception, staging, onward movement and integration at the new location.

Although many of the considerations for redeployment correspond to those for deployment, there are differences. During deployment, elements of a unit are configured for strategic or local movement with the ultimate goal of reassembling the elements into an effective force in the theater. During redeployment, the goal is the same if the unit is redeploying to a new theater to undertake operations. The goal differs, however, if the unit is redeploying to home locations rather than building a force for theater operations. Units redeploying to home-station normally re-establish unit integrity and accountability of personnel and equipment. Organizations usually redeploy to home stations as pure units. Redeployment to new theaters may require organizational modifications based on mission requirements. FM 100-17-5, *Redeployment*, provides detailed information for redeployment planning and operations.

REDEPLOYMENT PLANNING AND PREPARATIONS

Redeployment operations depend on numerous organizations providing the planning and infrastructure to sustain and move the redeploying forces. These organizations include the JFC and the JFC staff, the ASCC and its assigned units, and USTRANSCOM and its transportation component commands. The JFC J4, through a Joint Movement Center (JMC) if formed, is normally responsible for AIT guidance and /or the ITV plan for redeployment. The JFC may appoint a component (ASCC) as executive agent to develop AIT guidance. This guidance will be incorporated in ASCC, TSC, and unit plans. Key Army organizations involved in the redeployment process are discussed below.

Army Service Component Command/Army Forces (ASCC/ARFOR)

The ASCC or ARFOR commander and staff receive the JFCs redeployment guidance and plan for the redeployment of Army forces, including their reconstitution. The ASCC/ARFOR commander determines the organization responsible for redeployment operations based on mission, enemy, terrain, troops, and time available and civilian considerations (METT-TC). In mature theaters, the ASCC/ARFOR commander delegates much of the support for redeployment to the TSC. In less developed theaters, the ASCC/ARFOR may designate task-organized elements to provide necessary support and infrastructure. The ASCC/ARFOR must clearly define the redeployment flow, and establish the AIT infrastructure that will support the automatic data capture of units as they redeploy from the theater. The ASCC/ARFOR may provide additional AIT, communications and power supply support to the TSC and redeploying units to ensure they can successfully accomplish their redeployment AIT missions.

Theater Support Command (TSC)

In coordination with the ASCC/ARFOR commander's staff, the TSC support operations staff modifies the theater distribution plan to meet the JFCs redeployment priorities. The overall plan synchronizes the assembling, reconstitution, and movement of resources to theater POEs. The movement control agency (MCA) coordinates movement requirements with availability of USTRANSCOM strategic lift assets. The TSC support operations staff in coordination with any functional commands in the communications zone (COMMZ) coordinates and monitors in-transit visibility of redeploying forces. The TSC has two primary AIT missions during the redeployment of Army forces through the COMMZ:

- Establish an ITV data collection infrastructure that supports the JFC/ASCC/ARFOR requirement for in-transit visibility as units move between nodes in the redeployment process.
- Capture arrival and departure data on units, personnel, and equipment as they flow through the redeployment transition locations, (assembly areas, redeployment assembly areas, theater staging bases, and POEs). After data capture is complete, information must be passed to GTN within established time standards listed in the DoD AIT Implementation Plan. (See Chapter 3, Section I for a list of time standards.)

Installations

CONUS installations normally have assigned redeployment responsibilities for supporting Army forces returning to CONUS locations. For foreign-based forces, the foreign home installation and the ASG have redeployment responsibilities. Upon initiation of redeployment operations, MACOMs and installations begin preparatory actions to establish an AIT network that will capture data on the arrival of units at the POD and their subsequent movement to home/demobilization station. Supporting Installations are normally tasked by the MACOM with three major AIT related responsibilities to support the redeployment:

- In conjunction with USTRANSCOM TCCs ensure that the arrival and departure of redeploying forces is captured and reported at destination PODs.
- Provide en route to home station/installation ITV data collection and reporting as required by the MACOM, Joint Commander or ASCC.
- Collect and report data on units, personnel, and equipment as they arrive at the installation/home station.

Redeploying Unit

The redeploying unit must prepare their equipment for redeployment. The theater ITV portion of the redeployment plan will normally require redeploying units to perform the following AIT related tasks:

- Update the UDL for the redeployment operation.
- Create a personnel manifest.
- Obtain AIT data storage devices (bar coded MSLs & RFID tags).
- Populate data to the AIT data storage devices and attach them to unit equipment.
- Pass required redeployment data to other AISs and GTN.

REDEPLOYMENT STAGING/MARSHALING AREAS

Redeployment planning results in a network of staging/marshaling areas designed to efficiently move forces from their area of operation (AO) to their final destination. Based on the redeployment scenario units may pass through assembly areas (AA), redeployment assembly areas (RAA), staging bases, marshaling areas (MA), and possibly theater staging bases (TSB). Use of these areas will vary depending on the situation and redeployment guidance. Regardless of the areas used, the same AIT principles involved in deployment operations should be used for redeployment:

- Units update UDLs and ensure the information is passed ultimately to higher headquarters and the designated TSC unit controlling the transit location.
- AIT data storage devices (MSLs and RFID tags) are created and attached to redeploying equipment. The same initial source data that is used to populate the AIT data storage devices is passed to a local AIS and eventually to GTN to facilitate redeployment ITV.
- The TSC unit controlling the staging/marshaling locations use AIT interrogators/readers to collect data on the arrival and departure of all assets entering and leaving the areas. This information must be passed to GTN for ITV tracking.
    - AIT can also be used in the staging/marshaling areas for internal control procedures. Internal use is dependent on the TSC mission at the staging/marshaling location and the ability to provide the necessary power, communications, and hardware support.

Based on METT-TC, the ASCC and the redeploying commands may establish one or more of the following locations that units will pass through en route to the POE.

Assembly Area (AA)

This geographical area is designated for a unit to assemble in after being relieved from its operational mission. Units move to AAs for reconstitution, rest, or initial preparation for redeployment. AAs are normally located in the Corps area, but may be in the COMMZ based on METT-TC considerations. Within the AA, the unit consolidates equipment and personnel and assesses its capabilities. Movement to and within the AA is under control of the tactical commander. Units in the AA may reorganize, cross-level supplies, and prepare for movement to a redeployment assembly area (RAA) or directly to a port marshaling area. A unit that has sustained significant combat losses may undergo reconstitution in the AA when needed security and CSS can be provided. See FM 100-9, *Reconstitution*, for further details.

Redeployment Assembly Area (RAA)

RAA operations focus on preparing the redeploying unit for movement to a POE. The RAA is normally located within the COMMZ. The RAA provides the necessary security and support infrastructure to begin reconstitution and other required operations. A RAA may be established when:

- Dispersion prevents efficient organization within the AA.
- Threat of attack is significant in the AA.
- Support infrastructure is insufficient in the AA to prepare for redeployment.

Marshaling Area

This is the geographic location where a unit assembles, holds, and organizes supplies and equipment for onward movement. Marshaling operations in preparation for movement may be conducted within assembly areas (AA/RAA) when terrain or other considerations prevent the designation of separate marshaling areas. During redeployment, marshaling areas are established near APOEs/SPOEs. Within these port-marshaling areas, unit personnel and equipment are separated and the equipment is configured for strategic shipment.

Staging Area

A staging area is established for the concentration of large troop units and transient personnel to prepare for movements over lines of communication. Staging areas can also be established to facilitate change of transportation modes. Assembled units moving to a destination may pass through a staging area established to provide en route support. Staging areas can be located at important en route points, on established installations or bases, and within POE operations areas.

A theater staging base may be established for longer duration and more complex support functions. Support organizations such as an ASG establish and operate staging areas to facilitate movement of units, personnel, and equipment.

A port staging area is located within the POE operations area. This is an area used to process and hold personnel and equipment while they prepare for loading aboard lift assets. This is often the final location where AIT data storage devices can be checked and corrected.

Call Forward Area (CFA)

A CFA is a special-purpose area in close proximity to, or within a POE operations area. Within the CFA, equipment and personnel are processed and organized by specific types for sequential loading aboard lift assets.

Sterile Area

Sterile areas are holding areas for personnel and equipment after they process through the CFA. Personnel and equipment move to sterile areas after completing final customs and agricultural inspections and are isolated until loaded aboard lift assets. All AIT preparations should be complete before entering the sterile area. US and Military Customs personnel will not normally allow access to the sterile area for the purpose of conducting additional movement preparations.

REDEPLOYMENT ROUTING

The redeployment plan designates the routing of redeploying units to POEs. After completion of military operations, redeploying forces move to designated AAs. Based on the redeployment scenario, redeploying units could then move from the AA directly to marshaling areas for loading at

POE. Redeploying units may also move from the AA to a RAA and then to a POE, or from an AA to an RAA and theater staging base prior to arriving at the POE. The routing of units to their final destination depends on strategic lift asset availability, theater transportation facilities, throughput capacities, distance/geography between unit location and POE, potential for hostile action, force size, time available, and follow-on destination and mission. The following bullets describe three possible redeployment routing scenarios and associated AIT activities.

- Scenario 1 – Some missions do not require a movement away from the area of operations before redeployment. Units may begin redeployment movements to a POE directly from the AA. This occurs where conditions are stabilized, security against hostile action is not a factor, and railheads, airports, or seaports are available within the AO. Under this scenario, all AIT actions (updating AIS and attaching AIT data storage devices) must be accomplished by the unit prior to departure from the AA.
- Scenario 2 – Units may move from the AA to an RAA to complete preparations for redeployment. This movement may occur due to force security concerns in the AA, when units must turn equipment in at another location beyond the AA, or when needed support capabilities exist further to the rear. When the RAA is close to the designated POE, units may be sequenced directly from the RAA into the POE marshaling area. In this scenario, AIT actions may be completed at the AA or the RAA, depending on the actions that can be accomplished at the AA. The TSC, in coordination with the ASCC must address where AIT actions will be accomplished in this redeployment scenario.
- Scenario 3 – Intermediate staging is normally used when transshipment to another mode of transportation is required between the area of operations and the POE. Units may need to move through a TSB to transit geographical features unsuitable to current mode of transportation (e.g., road convoy to ships/air/rail/barge). These movements normally require a final staging area to give units a location to reassemble and conduct cleaning and inspection of equipment in preparation for sequencing into the POE. The TSC, with assistance from the redeploying unit, must ensure that any configuration changes or mode changes are captured in AIS. The TSC also ensures that new AIT data storage devices are created and attached to equipment that undergoes configuration changes.

RECOVERY, RECONSTITUTION, AND PREDEPLOYMENT ACTIVITIES

Units must reconstitute and prepare for redeployment regardless of the routing scenarios. Reconstitution for redeployment focuses on bringing forces to predeployment levels of readiness, the restoration of logistics stockpiles, and the accountability of deployed equipment and supplies. Additional actions may include: cross-leveling personnel, equipment, and supplies; reorganizing, decontaminating unit equipment, preparing unit equipment for movement, developing unit movement data, coordinating movement instructions, processing excess materiel, and accomplishing personnel actions.

MOVEMENT TO AND ACTIVITIES AT THE POE

Redeploying Unit Responsibilities in Preparation for Redeployment

Upon receiving a warning order, the redeploying unit starts the redeployment process. Units evaluate the assigned mission, current unit status, and requirements to accomplish the redeployment mission. If the unit is redeploying to another theater, it must also plan for employment in that theater. Redeploying units perform designated tasks in preparation for and during the movement to POE phase. Associated AIT functions and activities are included with the following task descriptions:

- Process personnel and equipment for redeployment. This process includes all actions that can be completed at the AA assuming availability of support assets and supplies. If actions cannot be completed in the AA, they must be completed at one of the other staging/marshaling locations before movement to the POE. The items listed below are important elements that should be completed as early as possible in the redeployment process.
  - Identify to supporting personnel managers those soldiers and civilians who will redeploy as individuals. Ensure they have a valid Smart Card. This action may require assistance from higher headquarters.
  - Conduct an equipment inventory and use this data to update the UDL. Once the UDL has been finalized, and transportation movement data received (e.g., TCN, ULN) use this information to produce the required AIT data storage devices (bar coded MSLs or RFID tags).
- Pack and load equipment. If units load equipment/containers within the AA, they must fully comply with agricultural and customs inspection requirements to avoid reopening the containers at later staging areas or at the POEs. As units stuff equipment into containers or build multipacks, the UMO or designated supply representative ensures the data is captured in AIS (TC-AIMS II). Once consolidation is complete, an MSL and RFID tag can be produced to provide an automatic means of collecting ITV data. When tags are created, the data must be passed to higher headquarters and the appropriate regional ITV server to allow for ITV tracking as the container moves through the redeployment pipeline.
- Initiate documentation for movement. The unit completes all documentation before loading. Documentation includes hazardous shipping declarations, papers, labels, placards, secondary cargo load plans/cards, packing lists, and MSLs.
- Conduct wash-down and Customs inspection. Initial wash-down of equipment may occur at the AA or RAA, however, final wash-down and inspections occur at the POE. If AIT data storage devices (particularly MSLs) are attached before final wash-down, they may be damaged or destroyed. Procedures must be established for fixing AIT data storage devices damaged during wash-down procedures.
- Plan to provide load teams and drivers to POE. Selected individuals may move from the AA to the POE to facilitate train download, SPOE staging, and vessel upload. The TSC or other support organization should identify these requirements before unit movement from the AA. UMOs should ensure these soldiers are accurately reflected in TC-AIMS II movement plans.
- Identify excess materiel and follow disposition instructions. Redeploying units process all excess equipment and supplies as required by ASCC/ARFOR/TSC guidance. UMOs ensure that material remaining in-theater is not reflected in their UDL. MSLs or RFID tags may be required to track the movement of this equipment from the AA/RAA to the in-theater storage locations or to final destinations.
- Receive equipment and supplies. Units redeploying to another theater draw and receive the equipment and supplies required to conduct follow-on missions. This equipment must be accurately reflected in the UDL and appropriate AIT data storage devices produced and attached. Once the data is updated, the information must be passed to higher headquarters for ITV reporting. This allows for automatic data collection and reporting as this additional equipment moves with the unit during the redeployment flow.
- Prepare for movement to POE. Redeploying units normally move from assembly areas to a POE marshaling area. This movement may require stops en route at TSBs or other support locations. In preparation for the movement redeploying units:

    - Load equipment, containers, flatracks, and 463L pallets. Coordination is required for "on-site" customs inspections for shipment items, including containers and military vans (MILVAN), and to certify seals.
    - Configure equipment for the appropriate transport mode.
- Use TC-AIMS II and verify the accuracy of AIT data storage devices. Correct any deficiencies prior to movement.

ASCC/ARFOR Responsibilities

As units prepare for and begin movement to the POE, the ASCC commander and staff provide the interface between the JFC and the redeploying Army units. In coordination with the JFC staff, the ASCC/ARFOR headquarters identifies AAs and RAAs and subordinate unit locations within these areas. The ASCC and subordinate commands develop plans for moving units from AAs/RAAs to POEs. These plans may include turning in equipment, performing wash-down operations, conducting reconstitution, creating and updating the UDL, determining container, flatrack, 463L pallet and BBPCT requirements and issue procedures, determining AIT requirements and procedures, conducting maintenance, and establishing life support measures. ASCC AIT activities include:

- Verifying unit movement data. Forces redeploy based on the TPFDD. The ASCC provides confirmed movement data to the JFC for the validation process through the designated Service feeder system into JOPES.
- Establishing the Army portion of the theater ITV plan. This includes providing guidance to the TSC on AIT data collection requirements at transit locations and for en route ITV tracking.
- Provide additional AIT support that is beyond the capability of the TSC or deploying units. Support may involve:
    - Providing additional AIT hardware to ensure ITV data is collected at designated en route and transit locations.
    - Providing additional power and communications capability to subordinate elements, and possibly to USTRANSCOM TCC elements in support of their AIT mission.
    - As required, providing contractor support to establish and operate theater level AIT infrastructure in support of the redeployment operation.

Theater Support Command Responsibilities

The TSC normally provides support that is beyond the capability of the tactical component of the ASCC. The following support functions and activities may involve AIT.

- The TSC identifies procedures for redeploying units to process APS and excess materiel. FM 100-17-1, *Army Pre-Positioned Afloat Operations* and FM 100-17-2, *Army Pre-Positioned Land Operations* provide additional guidance for turn-in of APS.
- The TSC opens the POE marshaling area and assists with opening the port staging area for SPOE operations. Marshaling area operations are conducted primarily by the unit with the ASG acting as facilitator. The TSC plans for the use of AIT to collect and report data on the arrival and departure of all personnel and equipment moving through the marshaling area. The marshaling area should also have the capability to produce bar coded MSLs, RFID tags, and Smart Cards in order to provide backup support to redeploying units moving through the marshaling area.

- The port MCT controls movement into the port area. Based on METT-TC, AIT data collection points may be established en route to POE marshaling areas to provide ITV management capabilities and to assist in controlling the movement of units and sustainment cargo.
- The TSC is normally responsible for establishing and operating any required COMMZ convoy support centers, to include aircraft support locations for units redeploying by organic air. Based on METT-TC, AIT RFID interrogators or bar code hand held scanners could be placed at these en route locations to collect and report data on the movement of units and equipment.

MOVEMENT TO THE POE EXECUTION ACTIVITIES

A number of organizations must synchronize their efforts at en route support staging/marshaling locations and the POEs to effectively conduct redeployment. ASCC and TSC functions and responsibilities are essentially the same regardless of the type of POE or the number of distinct staging/marshaling areas that units and equipment redeploy through en route to the POEs. These movements to POE responsibilities and functions are discussed in the following paragraphs.

ASCC/ARFOR Responsibilities

ASCC/ARFOR support organizations perform the following functions for units as they move to and through the POE:

- Monitor redeployment and resolve problems. The ASCC/ARFOR monitors redeployment operations and conducts necessary coordination with the JFC. It tracks unit movements from assembly areas to ports to ensure compliance with port calls and other published guidance.
- Provide additional power, and communications support to the TSC and units as required to meet the redeployment ITV data reporting requirements established by the JFC.

Theater Support Command Responsibilities and Functions

As units move to and through the POE, the TSC/ASG or other designated support organization accomplishes the following tasks:

- The TSC, through its MCA, coordinates with USTRANSCOM for strategic lift. Based on the availability of strategic lift, the TSC directs units to the POEs.
- The MCA controls movement from the combat zone (CZ) through the COMMZ. It also coordinates non-organic transportation support with other theater movement control elements. Port MCTs are positioned at air and seaports to coordinate movement of personnel and cargo to these facilities. The use of RFID interrogators at key designated transit points or check points, and the use of satellite tracking, can assist the MCA in controlling the movements of units and equipment en route to the POEs. These same AIT assets provide ITV data to local AISs that in-turn pass the data to GTN.
- Based on METT-TC, the redeployment scenario, command guidance, and geographical considerations, the TSC establishes required redeployment staging/marshaling areas en route, and at the POEs.
- Similar to RSO&I operations, the TSC must collect ITV data on the arrival and departure of units, personnel, and equipment at each node (AA, RAA, TSB, or other theater level staging area/activity) for movement from origin to POE. Once collected, this data must be provided to GTN within one hour of event occurrence. ITV collection and reporting at temporary en route support locations and for movement control (convoy support center, rest halts, checkpoints) is based on JFC and ASCC requirements, not DoD ITV reporting requirements.

- The TSC plans for the use of AIT data collection devices (RFID interrogators and hand held scanners) to assist in internal control and accountability within the staging/marshaling areas.
- The TSC and redeploying command coordinate unit requirements during staging/marshaling. Units may arrive in marshaling/staging areas with special AIT needs such as the requirement to produce Smart Cards or new AIT data storage devices based on changes that occurred since leaving the assembly area. The TSC assists in meeting these and other requirements to ensure that operations at the port are not interrupted.
- The TSC provides DACG support as required. A cargo transfer company is typically assigned the DACG mission. It conducts airfield clearance operations and processes planeloads for release. DACGs from cargo transfer companies will possess TC-AIMS II and associated AIT hardware. DACGs formed from ad hoc units may not have this capability. The TSC or organization providing the DACG must plan to equip the DACG with the necessary TC-AIMS II and AIT from internal or external sources, if the DACG is tasked with AIT responsibilities.
- The TSC provides PSA support as required. The PSA is a temporary military augmentation organization. It is OPCON to the port manager and assists in handling cargo. In some redeployment scenarios where a TSC is not present, the PSA may come from the redeploying command. The PSA, if tasked with AIT responsibility, should possess sufficient AIT to collect data on the arrival and departure of all equipment passing through their area of responsibility. PSAs from TO&E cargo transfer units will possess TC-AIMS II and associated AIT. Other PSAs must be furnished AIT by either the port manager, the TSC, or the organization providing the PSA. Organizations providing AIT support and equipment to the PSA should be identified in advance of port operation activities.

Redeploying Unit Activities at the POE Marshaling Area

Units may need to move equipment to APS turn-in sites while also moving personnel and equipment to POE marshaling areas. (APS turn-in is discussed in the next paragraph.) Upon arrival at the port marshaling area, units complete processing for strategic movement to include the following activities:

- Refine the UDL. Any changes to the unit's equipment and container status at the marshaling area must be reflected on the UDL.
- Ensure that assigned ULNs accurately reflect the unit's strength and equipment.
- Draw equipment and supplies as required. Units draw equipment and supplies required to conduct follow-on missions, usually when redeploying to another theater. If additional equipment is drawn, the UDL must be updated and applicable AIT data storage devices (bar coded MSLs and RFID tags) produced and attached. This information must be passed to higher headquarters and supporting organizations to schedule strategic lift and capture ITV source data.
- Conduct equipment wash-down and customs inspections. Wash-down and customs inspections can occur at any location from the AA to the POE. When wash-down and inspections are complete, MSLs should be applied. If labels were attached to equipment prior to final wash-down, they should be re-verified to ensure they are readable and properly attached.
- As equipment is stuffed into containers, the UMO or designated unit representative should capture the data using TC-AIMS II. After stuffing is complete, a RFID tag can be produced that provides detailed supply and transportation data. This information is passed to higher headquarters, the appropriate regional ITV server and designated support commands for ITV reporting and tracking requirements.

- Configure equipment for transport. Equipment may require additional configuration for transport in accordance with the most restrictive movement requirement. Once reconfiguration is complete, data in the UDL must be updated and AIT data storage devices produced and attached that reflect accurate dimensions and weights. This information must be passed to higher headquarters to update web-enabled AISs supporting ITV.
- Prepare documentation. The unit completes all documentation (hazardous shipping declarations, papers, labels, placards, secondary cargo load plans, packing lists, and MSLs) prior to loading for strategic movement.

Activities in Preparation for APS Turn-In

The return of APS-Land stocks is a critical redeployment task. These stocks will be returned to TM - 10/20 standards and prepared for reissue. Their expeditious return and accountability are essential to regeneration and storage. Based on the DoD AIT Implementation plan, the arrival and departure at all logistics nodes must be reported to GTN within established time standards. The APS-Land storage sites are logistics nodes.

As units prepare for redeployment in the assembly area they must also prepare to move APS-Land stocks back to the US Army Field Support Command (Provisional) (FSC) (PROV) storage site. Similar to any other redeployment, the unit must create an accurate UDL using TC-AIMS II or CATT and pass that data to higher headquarters and the organization controlling the assembly area. The assembly area control organization will coordinate with the local branch movement control team for onward movement instructions to the FSC storage site. Once transportation modes have been finalized and movement credits issued, the unit must prepare the equipment for shipment by the various modes of transportation. This may require reconfiguring the equipment (for example reducing the vehicle dimensions for movement via rail transport). After the equipment is reconfigured, the UMO will produce MSLs (and RFID tags if required) to allow for ITV monitoring of the movement to the APS-Land storage site. This information must be passed to higher headquarters and the assembly area control element. RFID tag data is passed to the appropriate regional ITV server. Data must be resident in web-enabled ITV systems to properly monitor the movement.

As equipment is loaded on transport and departs for the storage site, the assembly area control element must use TC-AIMS II to report departure data. For RFID tagged equipment the RIFD interrogators at departure gates should capture the movement and pass the data to the appropriate regional ITV server. For equipment not equipped with RFID tags, the MSLs must be scanned in the staging area and then data passed to the assembly area control group TC-AIMS II system. The assembly area control element would then use AIS to AIS data transfer to report departure when the convoy or equipment leaves the AA.

Based on theater capabilities there are several available options for collecting ITV arrival data at the FSC storage site. Establish the infrastructure at APS-Land locations to support AIT data collection at each site. Upon alert notification, activate the capability. Options for data collection include:

- Establish RFID read capability at APS-Land arrival and departure locations.
- Resource the locations with personnel and AIT hardware (e.g., from the supporting ASG/BSB, a cargo transfer company, or task and resource the AMC-LSE) to scan MSLs as equipment is marshaled or off loaded in preparation for turn in. Resource this element with TC-AIMS II and the communications capability to report equipment arrival within the time standards addressed in the DoD AIT Implementation Plan.
- Ensure that all convoys and CULT moving APS-Land stocks are equipped with satellite tracking capability. Use this capability to report arrival at the APS-Land storage site.
- Ensure the UMO or an S4 representative arrives at the APS-Land storage site with the advance party. As equipment arrives at the unit marshaling area collocated at the APS-Land

location, the UMO or S4 uses TC-AIMS II to scan/interrogate AIT data storage devices upon arrival. The data from the HHI is loaded into the unit's TC-AIMS II laptop and then passed to GTN.

ACTIVITIES AT THE POE

Marshaling Activities at Ports of Embarkation

During redeployment, marshaling involves separating personnel and equipment at or near the POE and preparing equipment for shipment. Essentially, the unit prepares personnel and equipment for processing through the POE operations areas. Units may conduct some marshaling in assembly areas (AAs and RAAs) when lack of sufficient available space or other factors prevent the establishment of separate marshaling areas at the POE.

Unit activities in the POE marshaling process are the responsibility of the redeploying unit commander. The redeploying unit completes the functions required to prepare equipment and personnel for loading aboard strategic lift. The unit may move by air, rail, ship, or barge. Marshaling operations are specific to the mode of transportation, but have similar load preparation requirements. The following paragraphs address marshaling considerations and unit AIT responsibilities for each mode of movement.

Marshaling at SPOE

SPOE marshaling areas are the final en route location for preparation of unit equipment for strategic movement before equipment enters the port staging area. Equipment arriving in a marshaling area is segregated in accordance with the cargo stowage plan. When a separate marshaling area is not available, units enter directly into the port staging area. The unit, port operator, and port manager have separate AIT functions at the SPOE.

Unit AIT related activities at the SPOE marshaling area could include the following:

- Establish liaison with the PSA and other supporting agencies. Verify AIT requirements and support available.
- Conduct a unit-level inspection of equipment in the marshaling area. Use the TC-AIMS II scanner to ensure that all MSL and RFID tag data are accurate. Verify that the labels and tags are properly attached to unit equipment.
- Verify the battery life in RFID tags. Replace batteries as necessary. (NOTE: The number and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)
- Prepare helicopters for ocean movement. After cocooning, ensure AIT data storage devices are accurate and properly attached to avoid damage or loss during transit.
- Perform final preparation of vehicles and equipment according to stow plan guidance. If weights or dimensions change, update the UDL. Based on the new UDL, produce new MSLs and update RFID tags. Attach the storage device to equipment and then pass the new information to higher headquarters and the marshaling area supporting organization.
- Assemble supplies and equipment into shiploads according to pre-stow load plans. If this requires nesting loads, produce required AIT data storage devices and update the supporting AISs.

Internal SPOE Operations

Regardless of the type of SPOE, (deployment, or redeployment) SPOE operations are generally the same. MTMC or the designated port manager will collect and report arrival data on all equipment entering the port complex using RFID capabilities and by scanning MSLs. This ITV arrival data is reported to GTN. As equipment is loaded on the vessel, the MSLs will be scanned at the final vessel stowage location. MTMC will prepare the final vessel manifest and report data to GTN and the SPOD using WPS. MSC will report ship departure. For a detailed discussion of internal SPOE operations, see Chapter 4, Section VI.

Marshaling at APOE

Marshaling activities should take place as close as possible to the departure airfield. Marshaling area locations should facilitate airfield operations and redeploying unit functions. Similar to deployments, personnel and equipment normally pass through separate physical locations at the APOE.

Unit responsibilities involving AIT at the APOE include:

- Establish liaison with the DACG and other supporting agencies. The unit liaison should be certified in air movement operations. Verify AIT requirements and support.
- Prepare helicopters for air movement. Ensure AIT data storage devices are accurate and properly attached to avoid damage or loss during transit.
- Perform final preparation of vehicles and equipment according to air transport guidelines. This includes weighing and marking the center of balance on vehicles. Replace MSLs and update RFID tags if weights or dimensions change and pass the new data to higher headquarters and the appropriate supporting commands.
- Prepare documentation to include load plans, manifest, and shipper's documentation.
- Conduct a final manifest of personnel and ensure data is updated in TC-AIMS II or the appropriate Air Force AIS (GATES/RGATES or CMOS).
- Assemble personnel, supplies, and equipment into aircraft loads (chalks) according to established load plans. If this requires nesting cargo or reconfiguring pallets, produce new AIT data storage devices for the cargo affected and update AISs.

Additional unit considerations (based on time available and AIT preparation completed at origin) are:

- Conduct a unit-level inspection of equipment before entry into the marshaling area. Use the TC-AIMS II reader/interrogator to ensure that all MSL and RFID tag data are accurate. Verify that the labels and tags are properly attached to unit equipment.
- Verify the battery life in RFID tags. Replace batteries as necessary.

Internal APOE Operations

Regardless of the type of APOE (deployment or redeployment), operations within the port complex are divided into three major areas: alert holding area, the call forward area, and the ready line/loading ramp area. Operating within these areas are the deploying unit, the DACG, the TALCE, and the load team. Each of these organizations has specific responsibilities in one or more of the APOE operating areas. The DACG is typically tailored from a cargo transfer company. It coordinates all unit efforts at the APOE and controls movement of redeploying units on the airfield up to the ready line. At the ready line, the TALCE assumes control and coordinates movement to the aircraft. For details on APOE AIT related responsibilities, see Chapter 4, Section V.

RAILHEADS

In addition to APOEs and SPOEs, units may redeploy through rail facilities. Railheads can be the designated mode of transportation to move units back to their home installation (for example, returning units from Bosnia to central European installations). The following rail activities may involve AIT as part of the redeployment process:

- Sequence loads for rail spurs. The ASCC/ARFOR/TSC develops and publishes the rail load plan based on the TPFDD and corresponding UDLs. UMOs, or other unit representatives ensure AIT data storage devices are accurate (MSLs and RFID tags).
- Once in the staging area, the UMO or MCT personnel will use TC-AIMS II to conduct a final check of AIT data storage devices to ensure they are accurate and properly attached. RFID batteries are checked and replaced as necessary.
- The unit provides documentation for rail transport to the TSC/ASG responsible for railhead operations. The TSC/ASG scans/interrogates arriving equipment AIT data storage devices (MSLs and RFID tags) and verifies the collected data with advanced movement data provided by the unit.
- The movement control element, or TSC support element captures the departure of all equipment as the train departs the railhead. This data is then reported to GTN (via TC-AIMS II or RFID through the regional ITV servers) in accordance with the applicable DoD AIT Implementation time standards (2 hours for inter-theater sustainment movements, 1 hour for unit movements).
- For passenger movements, the MCT or designated TSC unit scans the Smart Card of all redeploying soldiers to verify train manifest data. Once the train departs, this information is passed to GTN for ITV.

MOVEMENT TO POD

From boarding at the POE until offloading at the POD, passengers and cargo are under the authority of USTRANSCOM (except for rail). Supply and transportation data that is available in APOE/SPOE AISs is passed to GTN and other global asset visibility systems (GCCS and JTAV) and the designated APOD/SPOD AIS. Through AIS to AIS data exchange the APODs, SPODs, and Installation ITOs receive advanced data and begin planning reception and onward movement operations. When redeploying to home station, the home station parent command assumes C2 of units at PODs. The redeploying units parent command, in coordination with its MACOM and USTRANSCOM, monitor the redeployment process from PODs to home station and resolves problems as required.

RECEPTION, STAGING, ONWARD MOVEMENT AND INTEGRATION

Units may redeploy to home/demobilization stations in the US or overseas, or redeploy to another overseas location for operations. In the first case RSO&I is a matter of reception at the POD and movement to and activities at home/demobilization stations. If the unit redeploys to another theater to undertake operations, its actions from POD to assumption of new missions are governed by the principles in FM 100-17-3, *Reception, Staging, Onward Movement, and Integration*. AIT related requirements for RSO&I in a new theater of operation are covered in Chapter 5. The following discussion focuses on the process for units redeploying to home/mobilization stations. This process consists of reception and onward movement.

Reception

4-1. Reception is the process of offloading personnel and equipment from strategic or operational transport, marshaling local transport, and providing life support to redeploying personnel. The redeploying unit's MACOM or higher headquarters in coordination with the supporting installation, ASG and other designated support organizations, develops a redeployment reception and onward movement plan for all arriving forces and equipment. A critical aspect of this plan is identification of responsibilities and procedures for reporting equipment and passenger arrival and departure at PODs and arrival at destination. The arrival/departure information must be visible in GTN within one hour of event occurrence.

ITV Reporting Responsibilities for Reception Operations

Redeployment reception operations at the SPOD and APOD are basically the same as reception operations during deployment. (See chapter 5 for a detailed discussion of AIT actions at PODs.) For SPOD operations, MSC reports ship arrival and MTMC uses WPS to verify the arrival of redeploying unit equipment and sustainment equipment. WPS passes the equipment information to GTN. As equipment departs the port complex, MTMC reports departure to GTN. For APOD operations, AMC reports aircraft (and associated equipment and passenger) arrival to GTN using GATES/RGATES. ITV reporting of passengers and equipment departing the APOE is the responsibility of the MACOM or other Army command responsible for the reception of the redeploying force. This command must ensure that responsibilities are identified and procedures and resources in place to report departure movement data to GTN within one hour of event occurrence.

Supporting Installation Functions

Based on MACOM taskings, the SI, which may not be the unit's home station installation, has the responsibility for planning and executing the return of units from the POD. The SI or other designated support organization has the primary role of coordinating with the MTMC port manager for reception and onward movement of the cargo. Units redeploying to an overseas home station location are supported by a TSC/ASG or other organization that performs the functions of the US installation. In preparation for redeployment, the installation coordinates the actions and location of required support for the arrival ports and airfields. This includes coordination with the PSA and AACG as well as establishment of any en route support sites required by the redeployment plan. The SI may also be tasked with providing equipment and passenger APOD departure data to GTN.

Specific support functions provided by a SI may be stipulated in inter-service or intra-service support agreements. The SI provides installation functions and support to the PSA and AACG. It provides any required AIT or satellite tracking assets addressed in the redeployment plan. The SI also coordinates with MTMC and other affected agencies to perform inbound freight, rail, air, and highway operations. This includes providing commercial transportation, materiel handling equipment (MHE), container handling equipment (CHE), and AIT support as needed. Supporting installations may also be required to provide additional AIT hardware, power, and communications assets to support reception and onward movement ITV data collection and transmission. The SI monitors operations, resolves problems, and reports as required to higher headquarters and other coordinating organizations.

Supporting Unit Functions

Supporting units (e.g., ARNG, USAR, and other nondeployed units) provide assistance when tasked by the SI. These support functions may include receiving unit personnel and equipment or augmenting the PSA or AACG. When tasked, these units plan for the use of AIT to capture the arrival and movement of returning personnel and equipment. This data collection can be for internal control and for ITV reporting to GTN.

Redeploying Unit Functions

After the strategic lift arrives at the POD, the unit begins the download. Support units and non-deployed home station personnel assist the redeploying unit. Unit responsibilities at the POD include the following:

- Process personnel and equipment for movement through the marshaling area. Upon discharge of a vessel, all equipment is received and staged by military or civilian stevedores. The PSA organizes the equipment to facilitate movement to the final destination. The equipment may be configured into unit sets, organized by type of equipment, or configured for movement by a certain type of transport (truck, rail, barge, or air). AIT data storage devices (bar coded MSLs and RFID tags) should be scanned/interrogated and any missing or damaged devices replaced.
- Complete equipment inspections and process movement documentation. After download and staging at the POD, equipment is prepared for movement. This preparation includes safety inspections and briefings, maintenance operations, and fueling. All equipment moving to unit destination must be accompanied by copies of documentation. This includes hazardous material shipping declarations, papers, labels and placards; secondary cargo load plans, packing lists, and MSLs. The unit completes all required documentation prior to departing the POD.

Onward Movement

Onward movement is the process of moving personnel and accompanying materiel from reception, marshaling, and staging areas to their destinations. The SI is responsible for supporting redeploying forces until they arrive at their destination. This includes assistance in onward movement.

The preferred method for onward movement is typically the same as used in the fort-to-port portion of deployment. If moving by road, the unit conducts serial/convoy operations in accordance with movement SOPs and installation guidance. Convoy clearances are processed and approved and movement times established. Based on the onward movement scenario the following AIT related functions may occur:

- The SI or MACOM may establish en route AIT data collection points (RFID) to monitor and control the movement of convoys as they travel from the POD to home-station.
- The SI may be tasked by the MACOM to establish en route convoy support centers. If CSCs are established, AIT data collection devices (RFID interrogators or bar code scanners) should be considered to collect data on the arrival and departure of convoys at these sites.
- The SI or other designated organization (contractor or deploying command) may be required to install satellite-tracking transponders in selected vehicles to provide near real-time visibility of the convoy. (NOTE: ITV data collection and reporting at temporary en route support activities and for movement control [convoy support centers, rest halts, checkpoints] is not a DoD reporting requirement. Reporting at these locations is based on the redeploying unit's MACOM, higher headquarters, or SI requirements.)

If the unit or unit equipment moves by rail, the following AIT related functions may apply:

- The installation with POD responsibilities operates railheads at the POD. Units provide drivers, tie-down teams, safety officers or noncommissioned officers (NCOs), and other resources as directed by the installation. AIT data storage devices (MSLs and RFID tags) should be checked to ensure they are properly attached.
- As equipment departs the SPOD, MTMC will capture departure data using fixed or temporary RFID interrogators. This information is passed to GTN via the appropriate regional ITV server for ITV reporting.
- For equipment not using RFID, the MSLs must be scanned in the staging area and the data passed to the supporting AIS. As the equipment departs, the AIS could use an EDI transaction to pass ITV information to GTN.

ACTIVITIES AT DESTINATION INSTALLATIONS

As units prepare for and execute redeployment, destination installation or ASG commanders plan and prepare for the units return. Installations should plan for the use of AIT to collect arrival data for equipment and personnel. This information must be passed to GTN within one hour of arrival at the installation.

Installation Functions at Destination

Destinations for AC units are home stations. RC units return through a demobilization station. The demobilization station should be the same installation that served as the unit's mobilization station. Activities of demobilization stations are part of the demobilization process and are discussed in FM 100-17, *Mobilization, Deployment, Redeployment, and Demobilization*, JP 4-05, *Joint Doctrine for Mobilization Planning*, and JP 4-05.1, *Joint Tactics, Techniques, and Procedures for Manpower Mobilization and Demobilization Operations: Reserve (RC) Callup*.

The AIT related functions of destination home stations include:

- Activate emergency operations center as required. Prepare to collect and transmit ITV data.
- Publish and distribute warning orders to supporting units and notify key agencies. These warning orders should include expected AIT data collection and reporting requirements.
- Activate or establish AIT support infrastructure that will automatically capture the data on arriving personnel, units, and equipment.
- Scan personnel Smart Cards of redeploying soldiers at passenger reception locations and convoy arrival areas. Pass the collected data to the host AIS. The host AIS then transfers the data to GTN. Plans must also be established for capturing the arrival of redeploying soldiers that arrive aboard self-redeploying Army aircraft and watercraft.
- Using RFID gate interrogators or HHI/fixed interrogators/scanners at reception locations, capture and report the arrival of all unit equipment as it returns to the installation. Pass this data to GTN.
- Establish areas for turn-in of weapons and special equipment. Ensure the arrival data on this equipment is captured and reported.

Unit Functions at Destination

Upon arrival at destination, redeploying units:

- Disseminate follow-on orders. This should include ensuring that the OEL is up-to-date and preparations for the use of AIT in the next deployment are established.
- Arrange for personnel de-processing. Final de-processing is completed to include legal, financial, and medical processing; mental health counseling; and review of personnel records. Update or turn-in Smart Cards as required.
- Download and turn in equipment. The owning unit downloads and processes equipment arriving at the destination. The UMO or a designated S4 representative with a TC-AIMS II system can scan all MSLs and interrogate RFID tags to automatically collect receipt data on returning equipment.
- Perform maintenance. Units should develop and implement a maintenance plan to return equipment to predeployment condition. This includes replacing any damaged or missing AIT data storage devices.
- Return RFID tags to proper installation organizations for use in future deployments.

RC REDEPLOYMENT FROM POD TO HOME STATION

RC redeploying equipment and personnel move to home station via different routes after entry into CONUS. Normally, equipment will be sent via commercial contractor, convoy, rail, and possibly inland waterway from the SPOD to the home station storage location (i.e., mobilization and training equipment site [MATES], equipment concentration site [ECS], motor pool). RC redeploying personnel normally move to demobilization stations (usually the same location where they prepared for deployment) for out-processing and then load on commercial carrier transportation for movement to home station. Because of the long-standing policy to base RC units in their local communities, there are literally thousands of locations where RC equipment and personnel may move to upon return from a force projection mission. Using AIT to collect and pass data on the arrival of RC equipment and personnel at all these locations will be a challenging task. Listed below are several options for collecting and reporting arrival at RC home station locations:

- RC personnel arrival at home station reporting options:
  - For AIT and ITV reporting purposes, stop tracking the movement of RC personnel when they load transportation and depart the demobilization station. With this option, RC units report arrival at home station to their RC chain of command using their standard peacetime reporting procedures. This data would probably not be visible in GTN or other global ITV systems within the one hour time standard established by DoD.
  - For AIT and ITV reporting purposes, as RC units arrive at home destination, the group leader (or other designated individual) uses normal peacetime communications channels to inform higher headquarters of arrival. The higher headquarters, (battalion/ brigade) uses their TC-AIMS II system to report arrival to GTN. It is unlikely that this option will meet the one-hour standard reporting requirement dictated by the DoD AIT Implementation Plan. However, this may be the only option for reporting arrival of RC units at home station.
  - For commercial carrier moves, require that the carrier send an EDI transaction to GTN within one hour. The transaction reports arrival at RC home station locations. This requires that commercial carrier contracts include the additional reporting requirement. The contract would have to address the one hour reporting requirement and a common set of procedures and data entries to ensure the data was usable by GTN. Commercial carriers are not currently required to submit this EDI transaction. The cost of adding this requirement to all contracts must be balanced against the benefits received. This

option would not be applicable for units moving on organic or military assets. (NOTE: For group moves arranged using the Groups Operational Passenger system (GOPAX), passenger information is reported to GTN, however, GOPAX does not report actual movement data.)

- RC equipment arrival at home station storage locations reporting options:
  - Since RC equipment will move to numerous home station locations that are not equipped with AIT data collection capabilities, stop ITV tracking and reporting as the equipment departs the SPOD for home station. The receiving unit reports receipt using normal peacetime supply accountability procedures. Under this option, equipment may travel a considerable distance with no ITV or arrival visibility.
  - If moving RC equipment via military common user transport vehicles, ensure that all CULT is equipped with a satellite tracking capability. MTS should solve this problem in future redeployments but satellite tracking capabilities are not currently available on all CULT vehicles. The satellite tracking system can be used to report the equipment arrival at the home station storage location.
  - For RC equipment moving via commercial carrier, require that the commercial carrier send an EDI transaction to GTN reporting the arrival of the RC equipment at final destination. This option would require modifying commercial contracts to mandate this reporting requirement. The modification would have to address a standard set of communications parameters and a common data set element to make the EDI transaction readable to GTN. The costs of this additional EDI transaction must be weighted against the benefit of receiving the information within the established time standard.

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APPENDIX A

AUTOMATIC IDENTIFICATION TECHNOLOGY TOOLS

The use of automatic identification technology tools can assist in streamlining operational procedures (business processes) and improve data accuracy. There are four basic components of AIT:

- An automatic identification data storage device, (e.g., bar code label, optical memory card, Smart Card, or Radio Frequency tag).
- AIT hardware used to write/burn information onto the data storage devices and later, read/interrogate the data from the devices.
- Automated information systems that can support the reception of data from AIT enabling tools.
- A reliable communications infrastructure that links the AIT tools to the automated information systems and further links the automated information systems to global in-transit and total asset visibility systems.

As equipment flows through the force projection process, source data is captured at transportation nodes and in-transit points. The data capture is accomplished by scanning/interrogating the AIT data storage device attached to each piece of equipment. Currently, the information is often typed in by an operator as the equipment is in/out checked at each location. Human error rates approach three mistakes for every 85 key strokes. AIT automatic data capture virtually eliminates this error rate. If source data populating the AIT data storage device is correct, accountability and tracking of equipment as it moves through the force projection process is virtually error free.

This appendix is divided into three sections. Section I lists the AIT data storage devices that support force projection operations. Section II discusses the AIT hardware necessary to support the production of and information collection from AIT data storage devices. Section III addresses emerging technologies.

SECTION I – AIT DATA STORAGE DEVICES

GENERAL

In force projection operations, the Army uses several different AIT data storage devices such as bar codes, optical memory cards, radio frequency tags, and Smart Cards. A brief description and picture of each device is provided in the following paragraphs.

BAR CODE

DoD and the Army use two types of bar codes; linear and two-dimensional. All logistics nodes are required to read/write both types. Each node of the DoD logistics chain, including commercial vendors, will read and write linear and two-dimensional bar codes shipping labels which contain both transportation and supply information. A reader scans the bar code, decodes it, and transfers the data to a host automated information system. The DoD AIT Implementation Plan envisions bar code as the initial means to collect data about items moving in the logistics chain, and then providing that data to automated information systems.

The DoD AIT Operational Prototype tests validated the need for both types of bar code. If an operator is attempting to verify data already in an automated information system, scanning a linear bar code normally meets the requirement. If an automated information system lacks data, the 2D bar code can be scanned and used to populate the database in the automated information system.

Linear Bar Code

- The linear bar code provides item identification and document control information for individual items and shipments. Linear bar codes have limited storage capacity, normally consisting of about 20 characters. The commercial automatic identification manufacturer's BC-1 (Code 39) is the standard for linear bar codes used throughout DoD. Linear bar codes are used to represent key data elements (e.g. a national stock number, document number, or transportation control number). Figure A – 1 shows a linear bar code.

Figure A – 1 Linear Bar Code

The linear bar code is best used as an automated key to information pre-positioned in an automated information system. For example, in a force deployment scenario linear bar code information would represent each piece of equipment in the TC-AIMS II deployment equipment list. After the UMO verifies the data in TC-AIMS II, a linear bar code is printed for each piece of equipment. Using the hand held scanner, the UMO verifies that the bar code is readable and accurate. After verification, the UMO ensures the bar code is affixed to the appropriate piece of equipment. The bar code on is then scanned again to ensure that it was not damaged while being attached. This bar code can now be scanned by other operators in the force projection process to automatically capture the equipment information and to verify the accuracy of data in their automated information system. If equipment is being palletized (or repalletized due to a change in aircraft configuration), the bar codes attached to each piece of equipment can be scanned to create the pallet content list. After scanning all linear bar codes, a RFID tag or a 2D bar code can be automatically generated to provide a detailed pallet content list. By scanning the bar codes, potential manual data entry errors are eliminated.

Two Dimensional (2D) Bar Code

- A 2D bar code has a much greater data storage capacity than a linear bar code. They are currently capable of holding 1,850 characters. A 2D bar code can sustain considerable damage and still be read because of the redundancy of data within the bar code. DoD uses the commercial standard Portable Data File 417 (PDF 417) as the standard for all DoD 2D bar codes. The 2D symbology provides comprehensive data on documents, individual items or shipments, and consolidation data on multi-packs and air pallets. Figure A – 2 shows a 2D bar code matrix.

Figure A – 2 Two Dimensional Bar Code

Military shipping labels will incorporate 2D bar code fields as well as linear bar codes. Figure A – 3 shows an example of a "test" military shipping label with linear bar codes used in blocks 1, 9 and 16 and 2D bar code technology being used in block 18.

Figure A – 3 Military Shipping Label (test)

OPTICAL MEMORY CARD

An optical memory card (OMC) uses the same technology employed in compact disks and CD-ROM products. Data is etched to the card with a high-intensity laser creating a series of pits in the card. A low-power light beam is used to read the pits and collect the data. Data is written to an OMC in sequential order. As changes occur, all the shipment data is rewritten on the card (data on the card cannot be over-written). The card can be reused until all available memory space is filled. The optical memory card has a very large data capacity (2.4 megabytes), and DoD accepts the Drexler European License Association (DELA) standard format. Optical memory cards are relatively inexpensive, reusable, and unaffected by climatic changes. They are best used to transfer large amounts of shipment data to facilitate receipt processing at final destination.

In force projection operations optical memory cards will normally be used for sustainment cargo that is being containerized at installation level and above. Army supply practices attempt to create single consignee packs that are throughput to the end users supply source. In these cases, the multipack is not broken down before arrival at its final destination. This allows the data populated to the OMC to be used to verify multipack content and to automate receipt processing of the shipment. USTRANSCOM will not use optical memory cards at their strategic nodes for port to port shipments. In general, shipments that are consolidated at USTRANSCOM POEs are reconfigured at the POD. USTRANSCOMs automated information systems handle the data transfer and the need for optical memory cards at these nodes is redundant.

Deploying units can also use optical memory cards to support container movement. Under normal circumstances, the unit would pack the container and write an RFID tag using their TC-AIMS II system. In force projection operations where host nation RF approval has been denied or RFID is not being used, optical memory cards can be used to account for detailed container and pallet content. The UMO would use the TC-AIMS II hand held reader to scan bar codes as items are packed into the container. Once the container is loaded, the UMO coordinates with the installation to produce an optical memory card using the installation level TC-AIMS II system. This scenario would require advance coordination with downstream nodes as optical memory card use for unit packed containers is not a normal business practice. Theater RSO&I facilities would also require a capability to read OMC data on the arriving container. Figure A – 4 shows an OMC.

Figure A – 4 Optical Memory Card

SMART CARDS (ALSO KNOWN AS COMMON ACCESS CARDS)

A Smart Card is a plastic card similar in shape to a military identification card. Unlike the ID card, the Smart Card contains an integrated circuit chip with an 8-bit embedded microprocessor and 1 to 8 kilobyte memory capacities. Smart Cards may also contain one or more other methods (i.e., magnetic strip, bar code, digitized photo, printed information) for storing information related to the cardholder. Newer cards will have 16 and 32-bit microprocessors and a data storage capacity between 16 and 32 kilobytes. In addition to memory capacity, Smart Cards can contain security measures such as personal identification numbers, passwords, encrypted data, photos, or thumb print technology.

Power Projection Platforms and CONUS Replacement Centers (CRC) should be configured for Smart Card technology in order to use this AIT tool in future deployment and redeployment operations.

TC-AIMS II will eventually have the capability to read and create Smart Cards. USTRANSCOM's Global Air Transportation Execution System (GATES) and Remote GATES (R-GATES) will both use Smart Cards for passenger manifesting.

In a force projection scenario, the installation would produce Smart Cards for each deploying soldier as the soldier completes the Soldier Readiness Process. The Smart Card is then used to create automated manifests for bus, rail, air, sea, or other passenger movements. The Smart Card is scanned at each node where passengers transfer or change modes of transportation. This scan quickly verifies the accuracy of data in the automated information system manifest. At the tactical assembly area, a Smart Card scan of all arriving soldiers can be used to create an in-theater personnel database. Smart Cards can also be issued as part of the Non-Combatant Evacuation Operation (NEO) packet and used to track the movement of NEO passengers as they depart the theater of operations. Figure A – 5 depicts a Smart Card.

Figure A – 5 Smart Card

RADIO FREQUENCY IDENTIFICATION TECHNOLOGY

RFID is best used in force projection operations to provide automatic data capture of movements at key transit (choke) points during the deployment and redeployment flow, without human intervention. RFID also provides commanders standoff container or pallet content visibility and can be used to locate tagged items in congested ports, container yards, or staging areas.

RFID tags contain a microchip, a long life battery, and a RFID transceiver. The microchip contains unique tag identification information and can be loaded with data to identify the item(s) traveling with the tag. RFID write stations (tag docking stations), or interrogators, are used at the point of origin to write supply and transportation data to the tag and to report the same information to a central database. As the tag passes an interrogator during movement, the interrogator sends out an RF signal and "wakes up" the tag. The tag responds by sending data to the interrogator. The interrogator then passes this information and a date/time stamp to a supported automated information system or a regional ITV server. The interrogator can also be set to activate a tag beeper for all the tags within its range, or activate a specific tag number. Using this option, operators can find specific tags and associated equipment. RFID technology components are listed below.

Radio Frequency Tag

The Army is currently using two RFID tags, the older Seal Tag II and a newer tag 410 (see Figure A-6). Eventually the Army intends to transition to a single tag. Both tags hold data in the same format and transmit the data on the same frequency. Each tag has a unique tag number and can store up to 128 kilobytes of data. The tags have an omnidirectional unobstructed range of approximately 300 feet. The battery life of the tag is approximately 9 years, based on two collections per day. Battery life is an important consideration and should be checked closely when source data is written to the tag. The organization writing the tag should ensure that low batteries are replaced. Additionally, the theater ITV plan will identify nodes in the force projection process where the battery life should be checked and low batteries replaced. Battery life can be checked by a fixed or

handheld RFID interrogator or by viewing the Regional ITV Server low battery pages on the World Wide Web.

Figure A – 6 RFID Tags (Left – Older SealTag II – Right – Newer Tag 410)

RFID tags are best used in force projection operations to provide in-transit visibility of equipment and containers as they pass interrogators. The interrogators are located at the entrance and exit gates to deployment nodes or at transportation designated transit points. RFID tags can also be used to locate the piece of equipment that they are attached to by utilizing their "beeper" option. Similar to other methods of AIT, it is essential that the initial source data populated to the tag be correct in order for the RFID system to function properly.

Current RFID technology employed by DoD requires interrogators to be positioned within approximately 300 feet of the location where the RFID tag will pass or be located. In order for RFID technology to capture ITV data in the force projection scenario RFID interrogators must be installed prior to RFID tags passing the collection location.

CONTACT MEMORY BUTTONS

Contact memory buttons are an AIT enabling tool used by the Department of Navy. The Naval Supply Systems Command attaches the buttons to various pieces of equipment to provide ready access to a component's maintenance history. LIA and the Army maintenance community are currently exploring using contact memory buttons for similar purposes on Army equipment. A contact memory button is a very small, fast, read-write data storage device impervious to the elements in most harsh operating environments. It has a data storage capacity of between 128 and 32,000 bytes. A button does not require a battery to retain its memory and has a life expectancy of 100 years or 1 million read-write cycles. Buttons cannot be read remotely. Data is read from the button by touching a probe to the outside of the container. Buttons can be read-only, write-once-read-many-time, or read/write to allow updates. Figure A – 7 shows a button and probe.

Figure A – 7 Contact Memory Button and Probe

SECTION II – AIT HARDWARE

AIT hardware consists of enabling tools that allow operators to write information to AIT data storage devices or read/interrogate data that is populating an AIT data storage device. Following is a sample of some of the available tools currently used by the Army. (A complete list of current AIT hardware is available on the Product Manager AIT web page (www.peostamis.belvoir.army.mil/ait/home.htm) under the "Products" section.)

RFID TAG DOCKING STATIONS

The tag docking station is a hardware interface unit connected to an automated information system. The tag docking station is used to write data to RFID tags, one tag at a time. The tags are inserted into the docking station and data is transferred. It is important to interrogate the tag after data transfer to verify the information was correctly written. Tag docking stations will normally be used only at locations where pallets are being built or containers are being stuffed, i.e., DLA depots, installation container consolidation point, or at other major logistics activities. In force projection operations, tag docking stations will primarily be located at installation level to write tags for containers stuffed at installation logistics centers. For unit stuffed containers, the UMO will use the TC-AIMS II laptop and docking station to populate data to the tag. Figure A – 8 shows the docking station for the older SealTag II on the left and the newer tag 410 docking station on the right.

Figure A – 8 RFID Tag Docking Stations

RFID FIXED INTERROGATOR

A fixed AIT interrogator transmits queries to and receives data from all active RFID tags in its area. The maximum radius is approximately 300 (unobstructed) feet. The interrogator then passes the data to a host computer that can update the appropriate AIS. The data can also be passed to regional ITV servers and GTN to provide in-transit and total asset visibility. Fixed interrogators are positioned permanently in warehouses, central receiving points, and at selected points within transportation networks. The interrogator operates by sending a 'wake-up' signal to the RFID tag, which then transmits data back to the interrogator on a different frequency. (In some configurations, such as a GateReader, a motion sensor is included to activate the interrogator for data collection of tags on vehicles approaching the sensor). Fixed interrogators are also used to write data to tags. Although interrogators take more time to write the data to an individual tag, the fixed interrogator can write to multiple tags as opposed to a docking station that can only write data to one tag at a time. Interrogators are compatible with both the older and newer models of RFID tags. Figure A – 9 shows a picture of a RFID fixed interrogator mounted on a pole.

Figure A – 9 Fixed Interrogator

RF RELAY

The RF Relay functions as a wireless modem and is used as a substitute for hard-wire connections between fixed interrogators and the host computer. The RF Relay has a 7,500-foot range (unobstructed). RF Relays can be used in pairs to form a repeater for data transmission over longer distances or around obstructions. Figure A – 10 shows a RF Relay.

Figure A – 10 RF Relay

HAND HELD INTERROGATORS/SCANNERS (HHI)

RFID hand held interrogators/scanners (HHI) operate much like fixed interrogators but are not directly connected to the host computer or RFID Modem. Data from HHIs are downloaded to the host computer using a cable or infrared port. HHIs can be used to locate a specific tag, view the tag details, or to locate a specific item contained within one of several tagged containers or pallets. Additionally, HHIs can change (update) the tag data without using a docking station, or they can populate data to a new RFID tag. It is normally not recommended to change information on the tag using a HHI unless it is assured that the modified data will be uploaded to the regional ITV server. If the data is not uploaded viewers of the tag data on the regional ITV server (via WWW) will see different tag information than what is actually on the tag. HHIs are also used to scan bar codes (capability can be built into interrogator or require use of a bar code reading attachment). Figure A – 11 depicts two HHIs currently in use by the DoD.

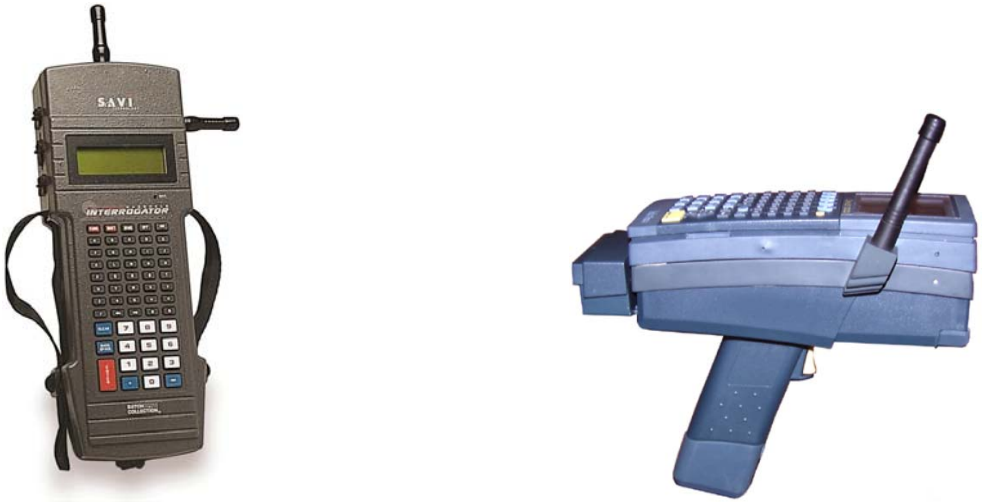

Figure A – 11 Hand Held RFID Interrogators

Hand held data collection devices are used by personnel to scan and record bar code data. Some of the devices are directly connected to the computer (tethered) while others are portable. The portable devices can store information for download by connecting to the computer system or they may have the ability to transmit data directly to a host computer using a wireless local area network (RLAN, also referred to as radio frequency data communication [RFDC]). Figure A – 12 shows an example of a tethered bar code reader and a portable data collection device.

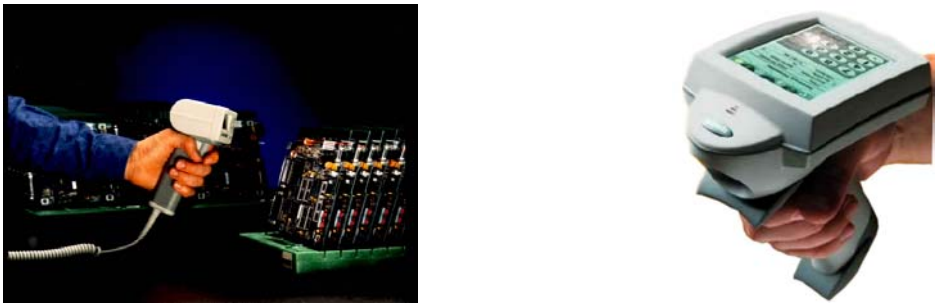

Figure A – 12 Data Collection Devices

Other common AIT hardware used to produce bar codes or transmit ITV data are described in the following paragraphs. A brief description of each device's function in the AIT data collection/transmission process is included.

BAR CODE LABEL PRINTER

Bar code readability is affected by print quality, smears, poor contrast, improper label stock, incorrect ink, and poor printer adjustment. Operational tests have found that as many as 50% of the bar codes printed at some locations are unreadable. Proper printer maintenance and care are important for producing readable bar codes. Figure A – 13 shows a desktop bar code printer as well as a ruggedized portable bar code printer.

Figure A – 13 Bar Code Printers

DEPLOYABLE AIT CAPABILITY KIT CONFIGURATION

Major components of the current LIA operational prototype deployable AIT capability kit (also known as an Early Entry Deployment Support Kit [E²DSK] [AIT] or flyaway kit) are grouped into three hard cases. Instructions with pictures on how to attach cables and equipment are included. The laptop computer will include an on-line tutorial application to provide the user with all information required to successfully install and operate the equipment.

The complete E²DSK is shown in figure A – 14. It may be used to support:

- Two read stations for a Port Opening Package, Airfield Opening Package, or a remote site where all shipments pass through a common area concurrently. Two stations are required for tag wake-up and 100% collection on shipments passing within 300 feet of installed interrogators.
- One read or write station (rewrite data from source data or from the web site). Requires power from a commercial source, a portable battery, or a military/commercial vehicle.
- One mobile hand held read/write station with MSL print capability.

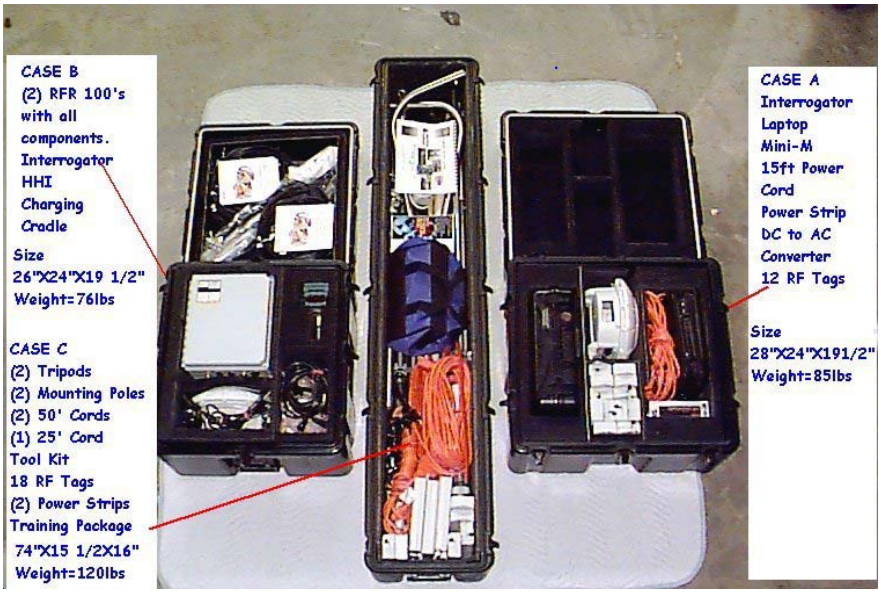

Figure A – 14 Early Entry Deployment Support Kit (E²DSK)

Case B consists primarily of an RFID fixed interrogator, a handheld interrogator (with battery charger), and two RF relays. Both AC and DC power cables are included to use power from commercial sources, generators, or vehicles. Figure A-16 shows the contents of Case B.

Figure A – 16 E^{2}DSK Case B Contents

Case C contains two tripods, mounting brackets, 18 RFID tags, power strips and cords, and assorted tools. Figure A – 17 shows the contents of Case C.

Figure A – 17 E^{2}DSK Case C Contents

SECTION III - EMERGING TECHNOLOGIES AND ENABLERS

RFID TAGS ON CONUS COMMERCIAL RAILWAY CARS

2-11. In 1992, a process began to equip all North American rail cars with Automatic Equipment Identification (AEI) tags -- also known as Automatic Car Identification or Rail Car Identification tags. The Association of American Railroad standard for rail equipment tagging is based on radio frequency identification technology developed by Amtech Corporation. It requires AEI

tags on every piece of rail equipment in interchange service in North America. Currently, more than 97% of all rail cars in interchange service have been tagged -- more than 3.7 million tags and 6,000 reader sites. Although not an Army asset, it may be possible to use this technology and EDI from the rail company to GTN to provide ITV data of Army equipment moving on commercial rail carriers. This same system may provide a solution for reporting RC equipment arrival at homestation (if traveling by railcar).

RFID TAGS WITH A DIRECT SATELLITE COMMUNICATIONS CAPABILITY

2-12. Recent improvements in RFID technology are being addressed that may solve the problem of needing an AIT RFID interrogation network on the ground in advance of force projection operations. An RFID tag has been developed with the ability to pass information directly to a satellite communication systems. The tags pass data to the satellite and then the satellite transfers the data to the appropriate AIS. This technological improvement may eliminate the need for an established RFID interrogation system during the early stages of a force projection operation. After the area is secure, a regular RFID interrogation system can be established and current DoD RFID technology employed.

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APPENDIX B

Labeling and Tagging Equipment

All unit equipment and sustainment cargo moving in a force projection operation should be labeled and tagged with AIT data storage devices. This appendix describes labeling requirements and provides a set of checks to assist organizations in applying AIT data storage devices to equipment. If applied properly these devices can be efficiently utilized throughout the deployment process to automatically collect and report supply and ITV data.

ESTABLISHED REQUIREMENTS

Current Army guidance only addresses attaching military shipping labels to equipment and containers. There are no standards for attaching RFID tags. Current requirements are:

- All containers will display two military shipping labels. One label will be placed on a container door and the other on the adjacent side. See Figure B-1 (page B-3).
- For vehicles, one label will be attached to the left front bumper (driver's side), and the other label will be placed on the left side door (driver's door). See Figure B-1.

ADDITIONAL CONSIDERATIONS

Information passed from a source AIS to GTN and other AISs must be the same information that is on the AIT data storage device. If changes occur to source data prior to movement, the AIS (TC-AIMS II) must be updated and new AIT data storage devices (MSLs and RFID tags) produced and affixed to the equipment.

The following two sections provide considerations and guidelines for AIT data storage device use on unit equipment and cargo. The UMO or other designated representative is responsible for ensuring that AIT data storage devices are properly produced and attached to unit equipment.

Military Shipping Labels

The following general guidelines should be considered when working with and attaching MSLs to unit equipment:

- When possible use Mylar MSLs. They are more resistant to damage by the weather. If paper MSLs are used, ensure they are laminated or otherwise protected from the elements. Ensure the label can still be scanned through the lamination or protective material.
- Ensure that every piece of equipment on the UDL has two military shipping labels produced and attached.
    - Ensure all required data fields are filled out correctly prior to printing the labels.
    - After producing the MSLs, scan the bar codes to ensure they are readable and accurate.
    - Ensure the correct MSLs are attached to the proper piece of equipment.
- Ensure that MSLs are securely attached to equipment to preclude loss or damage during transit.
    - When attaching MSLs, ensure the surface area where the label will be attached is clean. This allows the adhesive on the label to stick.

- After attaching the MSLs, check to ensure they are properly attached and were not damaged during placement on the equipment. Scan the bar codes to ensure that the correct MSLs are on the correct piece of equipment.

- For items that do not possess the physical characteristics of the equipment in paragraph B – 1, follow these general guidelines when attaching MSLs:
  - For equipment without bumpers or doors, attach the MSL in a similar position (left front, and left side). Ensure the labels can be easily found by individuals that need to scan the data at the various transit locations.
  - Do not attach the label to a part of the equipment that may be removed and packed separately during the movement. (For example, do not attach an MSL to the drivers' door of a soft-top HMMWV if the door will be removed and packed prior to loading strategic transportation.)
  - Attach MSLs to 463L pallets and other multipacks the same as containers. Place MSLs on one end and on the adjacent side at the same end of the multipack or pallet.
- Do not mark on the code 39 or PDF-417 symbology on the MSLs. If local procedures require operators to physically mark the label after it has been scanned (to provide a visual check showing the bar code has been read) mark somewhere other then the symbologies. Marking over the code 39 or PDF-417 symbology may make the bar code unreadable at other transit locations.

Radio Frequency Tags

The following general guidelines should be considered when working with and attaching RFID tags to unit equipment.

- After writing RFID tags, interrogate the tag to ensure that the data transferred correctly.
- Ensure the RFID tag is attached to the correct piece of equipment.
- When attaching RFID tags to equipment:
  - Attach the RFID tags in a location on the equipment that reasonably assures they can be interrogated as they flow through the movement process. The RFID tags must be on the outside of the equipment.
  - Develop a method to attach the RFID tags to preclude loss or damage during shipment. Plastic "zip" strips, nylon strips, or magnetic holders have worked well in previous operations. (Note: previous experience has shown that the plastic strips are not as durable as the nylon strips.) Tie down both the top and the bottom of the tag to avoid tag "bouncing" during shipment.
  - When attaching the newer 410 tag to containers, mount them on the right side near the top. Ensure that the RFID tag is positioned between the ribs in an indentation. When attaching the older SealTag II RFID tags, use the nylon strips and mount tags to the front door.
  - When attaching RFID tags to vehicles, tie the tag to the top of the grill. Using two long nylon strips to attach the device helps ensure the tag will not bounce or be lost during transit.
  - Attach RFID tags on 463L pallet netting using nylon strips. Put the tag near the MSL.

- When attaching RFID tags on other equipment, mount the tag so that it can easily be read but not damaged. Use nylon or plastic strips to attach the tag.
- Do not drill holes in equipment without prior approval from the owners. (In previous operations, organizations have created brackets to attach RFID tags to containers. Mounting the brackets required drilling holes in the commercial containers. As prior approval was not obtained from the container owner, DoD paid for the damage.)
- Verify the battery life of RFID tags. If the battery power is low, replace the batteries. RFID tags with low battery power will not operate properly and will not respond to interrogator 'wake up' calls. The process of checking RFID tag batteries as equipment and sustainment supplies flow through the force projection pipeline will require advanced planning. For example, when the older Seal Tag II is attached to a vehicle, zip strips would be used to fasten the top and bottom of the tag to the front grill of the truck. In order to turn the tag over and replace the batteries at least one of the zip strips will have to be cut or broken. Procedures must be in place so that the individual checking tag batteries can quickly and easily break the zip strip, replace the batteries, and then replace the zip strip ensuring that the tag is once again securely fastened to the vehicle. (NOTE: The newer 410 Tag battery is accessible from the front and can be replaced

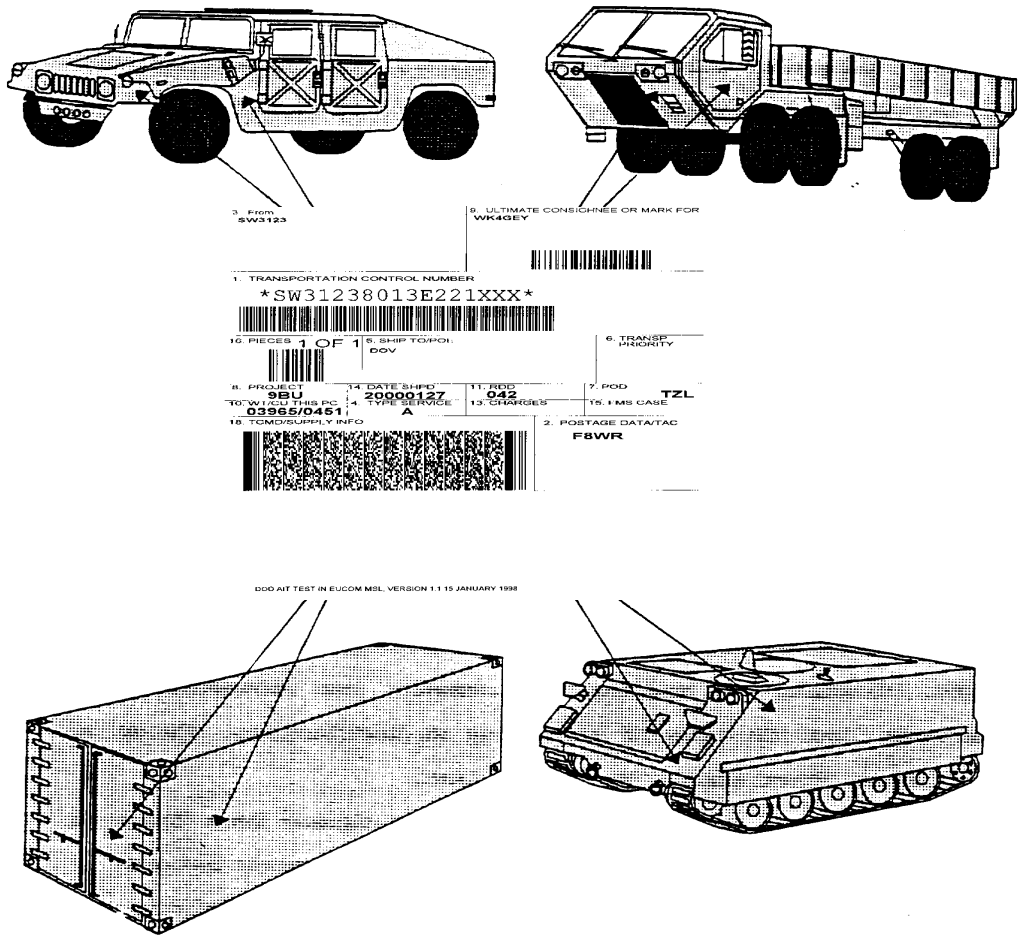

Figure B - 1 Placement of MSLs on Rolling Stock & Containers

without breaking the zip strips.)

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APPENDIX C

Automated Information Systems Used in Force Projection

This appendix discusses selected automated information systems used in the force projection process. It includes higher level and unit planning and execution systems, systems that provide source data to TC-AIMS II, and systems used to support sustainment ITV. It also discusses satellite-tracking systems that support ITV and force tracking. The appendix is divided into two sections. Section I is an alphabetical listing of AISs and Section II covers satellite tracking systems. Figure C-1 depicts automated information systems supporting in-transit visibility and movement planning data flows in force projection operations. Following the figure is a brief explanation for each numbered item.

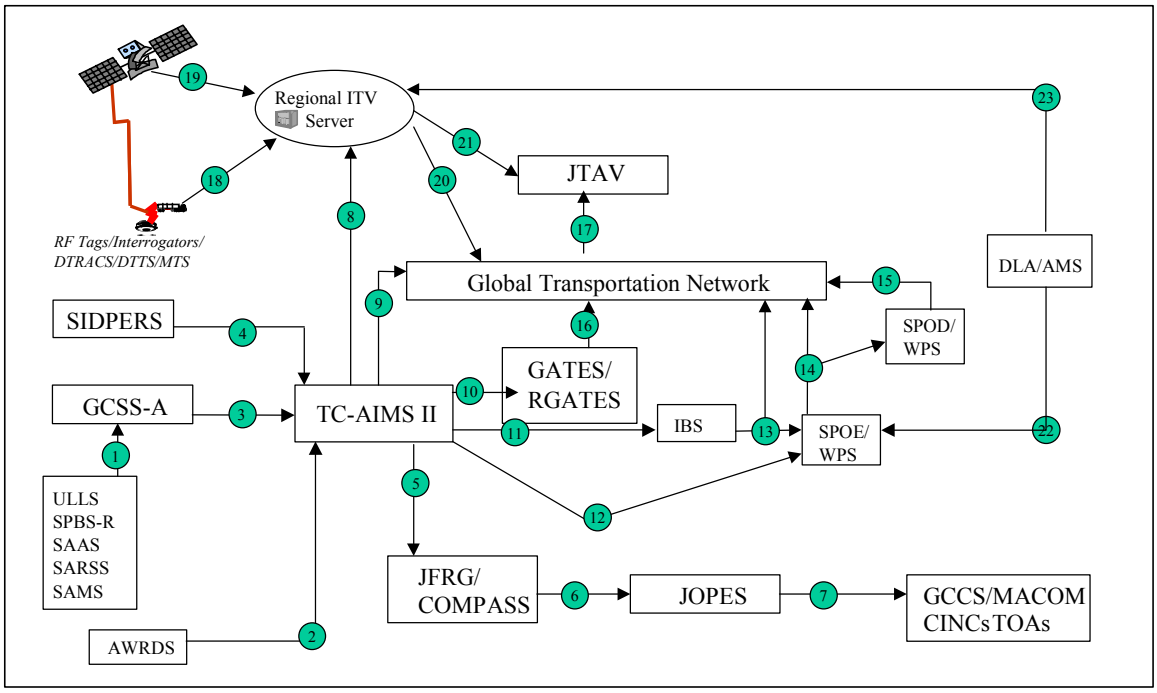

Figure C – 1 AIT/AIS Relationship in Force Projection Operations

- 1 – Equipment source data resident in Combat Service Support (CSS) AISs is imported into GCSS-A.
- 2 – AWRDS battlebook equipment source data is passed to TC-AIMS II.
- 3 – GCSS-A source data is pulled to TC-AIMS II to create the UDL.
- 4 – SIDPERS data is pulled into TC-AIMS II to create PAX manifests.
- 5 – TC-AIMS II passes UDL to JFRG/COMPASS.
- 6 – JFRG/COMPASS analyzed movement data is passed to JOPES.
- 7 – TPFDL data is passed to GCCS and MACOMs/CINCs/TOAs.
- 8 – TC-AIMS II can pass initial load of RFID data to appropriate regional ITV server.

- 9 – TC-AIMS II passes source/ITV data to GTN.
- 10 – TC-AIMS II passes ATCMDs and PAX data to GATES/RGATES.
- 11 – TC-AIMS II passes UDL to IBS in CONUS.
- 12 – TC-AIMS II passes ATCMDs to WPS in OCONUS.
- 13 – IBS passes booking data to GTN and UDL to WPS in CONUS.
- 14 – SPOE WPS passes ITV data and Ocean Cargo Manifests to GTN, and ocean cargo manifests to the SPOD WPS.
- 15 – SPOD WPS passes ITV data and Ocean Cargo Manifests to GTN.
- 16 – GATES/RGATES passes ITV data manifests to GTN.
- 17 – GTN passes ITV event data to JTAV.
- 18 – Captured RFID tag data is passed to the appropriate regional ITV server.
- 19 – Satellite Transponder data is passed to appropriate regional ITV server.
- 20 – Appropriate regional ITV server passes ITV event data to GTN.
- 21 – Appropriate regional ITV server passes ITV event data to JTAV.
- 22 – DLA AMS passes sustainment ATCMD data to SPOE WPS.
- 23 – DLA AMS passes sustainment initial load of RFID tag data to appropriate regional ITV server.

SECTION I – AUTOMATED INFORMATION SYSTEMS

The following paragraphs provide a brief description of the automated information systems that support force projection. The systems are listed in alphabetical order.

AUTOMATED MANIFEST SYSTEM (AMS)

AMS is a Defense Logistics Agency (DLA) initiative that utilizes laser-readable optical memory cards in place of paper packing slips on the exterior of shipment containers. The card contains a detailed list of the contents of the multipack including Transportation Control Number (TCN), National Stock Numbers (NSNs) and Document Numbers. AMS is used at depots and Central Receiving Points (CRPs). Supply Support Activities (SSAs) equipped with SARSS (such as the direct support unit (DSU) in a forward support battalion) have the ability to read the AMS card. AMS facilitates manifesting and tracking of multipack shipments from the depot to the CRP or SSA. AMS provides "in the box" asset visibility and may be used as the source of ITV data. The AMS reader can be connected directly to the AIS at the receiving unit, thereby increasing the accuracy of data by automating the input of source data. This system has been used in Somalia and Haiti. It is currently in use at most SSAs supporting the US Army Europe in Germany, Italy, Hungary, Bosnia, and Kosovo.

ARMY WAR RESERVE DEPLOYMENT SYSTEM (AWRDS)

AWRDS was developed for the Army War Reserve Support Command. It is an automated system designed to facilitate the supply accountability transfer of pre-positioned stocks from Army Material

Command to using units. It is capable of supporting rapid military deployment anywhere in the world. It provides the ability to:

- Build and maintain a database containing APS-L stocks and equipment data. The data also reflects how the APS-L stocks are configured.
- Retrieve information and provide data visibility into containers, vehicles, trailers, and multi-pack items on a real-time basis in the form of reports, listings, or data sets.
- Utilize automatic identification technology (bar code only) to collect equipment data and track and maintain changes in cargo configuration.
- Perform readiness reporting.
- Track equipment at unit identification code/national stock number (UIC/NSN)/serial number level.

2-13. AWRDS exports data to the Joint Total Asset Visibility (JTAV) system, the Worldwide Port System (WPS), and to retail AISs including SPBS-R, SARSS, and ULLS-G. AWRDS provides the supply, maintenance, accountability, and equipment data in the proper format to rapidly upload unit or set information into the drawing unit's SPBS-R, Unit Level Logistics System-Ground (ULLS-G), SAMS, and SARSS systems. Upon alert notification, the unit will enter the AWRDS system and download the applicable unit set from the AWRDS online battle-book to the unit SPBS-R system. Once the download is complete, the UMO will use TC-AIMS II to extract the data from SPBS-R and create the deployment equipment list. The unit will analyze the data and then plan to deploy any equipment needed in the operation but not available in the Army War Reserve stock.

AWRDS only uses bar code AIT for accounting and transfer purposes. The system is not designed to provide ITV data and there is no RFID capability. If RFID ITV or force tracking is required in the operation, TC-AIMS II or another system must produce the tags. An agreement between the AMC-LSE and the ASCC/JFC will be required to coordinate the writing and placement of RFID tags. See Chapter 5, para 5-56 for a discussion of RFID considerations.

COMPUTERIZED MOVEMENT PLANNING AND STATUS SYSTEM (COMPASS)

COMPASS is a DA information management system designed to maintain unit movement data (UMD) for both planning and executing mobilization and deployment operations. Developed and currently maintained by FORSCOM on the GCCS-A, COMPASS was designed to function at MACOM level to support unit mobilization, deployment, and redeployment. COMPASS supports MACOM-level UMD validation, strategic mobility analysis, and decision-making. It converts TC-ACCIS/TC-AIMS II UMD into a COMPASS AUEL and maintains UMD for use in mobilization and deployment planning. COMPASS reformats this UMD data and updates JOPES. COMPASS data is available to anyone in the Joint Deployment Community with GCCS-A capability. Detailed guidance on how to prepare and submit UMD is in FORSCOM Regulation 55-2*, Unit Movement Data Reporting and Systems Administration*. COMPASS is a critical link between the unit/installation and JOPES.

DIRECT VENDOR DELIVERY ELECTRONIC DATA INTERCHANGE (DVD EDI)

Through a series of initiatives, DLA and MTMC have been working with direct vendor delivery candidates to establish a standard set of data elements that will allow vendors to provide detailed shipping status via electronic data interchange. This data exchange will provide information on the

content of sustainment cargo moving outside the DTS. Vendors will provide the initial source data required for force tracking and ITV reporting to DoD automated information systems. As DVD sustainment supplies move to the theater of operation via vendor or commercial carrier modes of transport, the commercial carrier ITV system will provide ITV data to DLA and MTMC AISs.

GLOBAL AIR TRANSPORTATION EXECUTION SYSTEM (GATES), AND REMOTE-GATES(RGATES)

GATES/RGATES is an aerial port system that combines and integrates command and control operations, passenger operations, and cargo movement processes. It assists handling cargo manifested for air shipment, cargo at aerial ports awaiting air shipment, and cargo departing from aerial ports via air or ground transportation. GATES/RGATES (1) processes and tracks cargo and passenger information; (2) supports management of resources; (3) provides logistical support information; (4) supports scheduling and forecasting; (5) provides tracking and tracing of aerial port assets (including personnel, vehicles, equipment, and supplies); (6) supports processing Service/agency short-term cargo requirements and long-term passenger and cargo requirements; (7) supports channel mission management; (8) manages tariff data regarding baggage, passenger, and pet fares; (9) manages passenger reservations; and (10) provide reports/transportation status for AMC and AMC customers.

GLOBAL COMMAND AND CONTROL SYSTEM (GCCS)

GCCS is the key command, control, communications, computers and intelligence (C4I) system that replaced the Worldwide Military Command and Control System (WWMCCS). GCCS is a system of interconnected computers that provides an integrated C4I capability to the entire joint community. It provides up to SECRET-level information from a variety of applications that have migrated, or are in the process of migrating from other systems. GCCS is used by the Joint Planning and Execution Community (JPEC) to document movement requirements, transportation closure, and other significant force projection events. GCCS is flexible enough for combat operations or humanitarian assistance missions. GCCS integrates deliberate and crisis action planning, force deployment and employment, fire support, air operations and planning, intelligence, and force status. It is designed to allow the expansion of planning and execution capabilities as new systems are designed. GCCS is based on a common operating environment allowing greater software flexibility, reliability, and interoperability with other automated systems. GCCS will receive logistics information from JTAV, GCSS, and GTN.

GLOBAL COMMAND AND CONTROL SYSTEM – ARMY (GCCS-A)

2-14. GCCS-A is the Army component system that directly supports implementation of the joint GCCS and provides the echelon above corps (EAC) portion of the Army Battle Command and Control System. GCCS-A supports operations from peace to war, including contingency and stability or support operations. It supports the Army component commands, CINCs, Army JTF commands and components, and HQDA. GCCS-A is tailored to Army-specific information management needs. Integration will be partially achieved from the "best of breed" process as GCCS-A and GCCS share and reuse software modules. GCCS-A is fundamentally GCCS with additional Army functionality. Two key modules are:

- End-to-End Force Tracking (EEFT). This module allows the commander to visualize the flow of forces into a theater in accordance with the TPFDD and to perform force tracking. The force tracking feature receives a portion of its data input from the AIT data collection

process. This system is modeled after the Standard Theater Army Command and Control System (STACCS), a USAREUR unique command and control system.

- Echelons Above Corps-Combat Service Support Control System (EAC-CSSCS) module. These applications will eventually be provided in GCSS-A. It will provide commanders and planning staffs an automated capability to generate a common picture of the battlefield, the CSS sustainability status, and COA planning. Commanders and staffs will be provided with detailed information on the mobilization, deployment, redeployment, and demobilization status of specified units.

GLOBAL COMBAT SUPPORT SYSTEM (GCSS)

GCSS is a DoD-level initiative to ensure interoperability across CSS AIS functions, as well as between CSS and C2 AIS functions. It is neither an acquisition program nor a standard information system, but a strategy for enhancing CSS effectiveness within and between the Services. GCSS requires each Service to implement common technical standards for their automated information systems IAW the Defense Information Infrastructure (DII)/Common Operating Environment (COE). This includes the use of standard data elements to improve interoperability and understanding when sharing information among the Services during joint operations. Each Service is in the process of upgrading to these new technical standards. The Army's program to implement these standards is known as GCSS-Army.

GLOBAL COMBAT SUPPORT SYSTEM – ARMY (GCSS-A)

GCSS-Army is being developed as the replacement for several of the Army's current AISs. It will operate in conjunction with other key systems (such as TC-AIMS II, MTS, and CSSCS) to provide support personnel detailed information about what is required by the warfighter. GCSS-A will provide data on the current availability of needed material in the supply system, to include items in the distribution pipeline. GCSS-Army will address the Army's current automation dilemma of having "stove-piped" systems, that is, systems that do not share information horizontally among different functional areas. It will be designed with the maximum amount of communications capability and flexibility to take advantage of any available communication systems to include commercial or military satellite systems. GCSS-Army will comply with the DII/COE technical standards and data element standards approved by DoD. Compliance with these DoD-level standards is a critical step toward achieving the required joint interoperability goals in support of the DoD GCSS.

In future force projection planning using GCSS-A, the UMO will not have to maintain updated UDL and personnel data on TC-AIMS II. When notified to deploy, the UMO will import initial source data from GCSS-A. GCSS-A will maintain the status of all equipment assigned to the unit. Current systems that will migrate to GCSS-A include SARSS, SAAS, SPBS-R, and ULLS. GCSS-A will integrate all supply, property, ammunition, and maintenance functions (less medical) at the unit level.

GLOBAL TRANSPORTATION NETWORK (GTN)

GTN is an automated command and control information system that provides transportation users and providers with an integrated view of transportation information. It gives USTRANSCOM the ability to perform command and control operations, planning and analysis, and business operations, to meet customer requirements. GTN provides ITV for the DTS. GTN collects and integrates

transportation information from selected DoD systems for use by transportation data customers, the NCA, CINCs, USTRANSCOM, and the Services. The system provides these users the ability to monitor movement of forces, cargo, passengers, and patients and the movement of military and commercial airlift, sealift and surface assets. GTN is accessible on the World Wide Web. When fully developed, GTN will provide ITV from fort to the foxhole.

The time standards established in the DoD AIT CONOPS and DoD AIT Implementation Plan are based on asset visibility within GTN. All nodes in the force projection pipeline must ensure arrival and departure ITV data is available in GTN within the time standards established in the DoD AIT Implementation Plan.

INTEGRATED BOOKING SYSTEM (IBS)

IBS is the lead execution system of the Defense Transportation System (DTS) for overseas movement of military cargo by surface. IBS manages and conducts these responsibilities by providing a single, worldwide, automated booking system to support the peacetime and wartime movement of unit and sustainment cargo in an efficient and timely manner. Additionally, IBS automates existing manual interfaces with other MTMC systems and DoD agencies. IBS allows shippers to automatically book requirements instead of processing them through MTMC booking offices. Automatic booking reduces the level of manual intervention required.

JOINT FORCE REQUIREMENTS GENERATOR II (JFRG-II)

JFRG II is a Time-Phased Force and Deployment Data (TPFDD) manipulating and editing application designed to facilitate deployment planning and execution while in garrison or forward deployed. It sources, analyzes, and refines TPFDDs and is capable of remote, low bandwidth operation or client/server operations via GCCS. It imports and exports JOPES executable TPFDDs and provides an interface between unclassified unit deployment planning systems and classified JOPES.

JOINT OPERATION PLANNING AND EXECUTION SYSTEM (JOPES)

JOPES standardizes the joint planning system used to execute complex multi-service exercises, campaigns, and operations. It is a combination of joint policies, procedures, personnel, training and a reporting structure supported by automated data processing systems, reporting systems, and GCCS. JOPES is a GCCS application. JOPES furnishes joint commanders and war planners, at all levels, standardized policy procedures and formats to execute a variety of required tasks. It assists planners in development of OPLANs, CONPLANs, functional plans, campaign plans, and OPORDs. JOPES is used for TPFDD management and development. It defines requirements and gains visibility of the movement of forces into the combat commanders' area of responsibility. This system assists planners with the development of detailed deployment requirements, logistics estimates, transportation requirements, and assessment of the OPLAN for transportation feasibility. JOPES also tracks, plans, prioritizes, and monitors deployment status and requirements. For a more detailed description of JOPES, refer to the JOPES User Guide, 1 May 1995.

JOINT TOTAL ASSET VISIBILITY SYSTEM (JTAV)

JTAV is the capability that will provide commander-in chiefs, military services, and DoD components with timely and accurate information on the location, movement, status, and identity of all supplies, equipment, units, and personnel, whether they are in-transit, in-storage, or in-process.

JTAV also facilitates the ability to use this information to improve the overall performance of DoD logistics practices. The JTAV capability will be an essential component of the overall GCSS system. JTAV will provide the capability to obtain access to distributed data across DoD, including data on nontraditional supply assets, such as program manager materiel, unit-level operations and maintenance assets, and contractor or vendor-managed materiel.

REGIONAL ITV SERVERS

2-15. United States Army Europe (USAREUR) and Eight United States Army (EUSA) have established regional ITV servers that gather information and track the real time location of selected unit and equipment movements within their areas of operation. There are plans to install a third ITV server in CONUS. These ITV servers receive information from automated information systems and satellite tracking systems. As RFID tagged equipment passes interrogator locations, the data is transferred to a collocated AIS and then fed to the regional ITV server. Satellite transponder reports also update the regional ITV servers. Once data is available in the regional ITV server, it is used to monitor ITV and force tracking information. The regional ITV servers pass in-transit visibility data to GTN.

STANDARD ARMY AMMUNITION SYSTEM – MODERNIZED (SAAS-MOD)

SAAS-MOD integrates all retail munitions supply functions and processes. It is used at three levels: corps and theater MMCs, ammunition supply points (ASPs), and the division ammunition office (DAO). The primary purpose of SAAS-MOD is to provide conventional ammunition assets to tactical commanders during wartime conditions. SAAS-MOD manages all conventional ammunition, guided missile large rockets (GMLRs) and their related components, and packaging materiel. The system uses desktop-type computers and associated AIT to accomplish these tasks. It provides in-transit visibility and stock record accounting for ammunition at the retail level. SAAS-MOD can interface with the following systems: SAAS, Commodity Command Standard System (CCSS), Worldwide Ammunition Reporting System (WARS), Standard Property Book System-Redesign (SPBS-R), Department of the Army Movement Management System-Redesigned (DAMMS-R), ULLS-S4, and CSSCS.

STANDARD ARMY RETAIL SUPPLY SYSTEM (SARSS)

SARSS consists of three components: SARSS-1, SARSS-2A, and SARSS-2AC/B. SARSS-1 is the automated system used in SSAs at all echelons to accomplish the missions of receipt, storage, and issue. SARSS-1 has interfaces to receive and process requests for issue from ULLS, SPBS-R, and SAMS-1. SARSS-2A is the automated supply management system used by managers in MMCs at the division, separate brigade, or armored cavalry regiment (ACR) level. It provides the tools necessary for item managers to establish stockage level and support relationships (which units are supported by which SSA for which classes of supply), and to control the lateral issue process (referrals) of assets between SSAs. SARSS-2AC/B is used at the corps and theater MMCs. It provides the same management capabilities for the corps/theater MMC managers who are responsible for corps/theater SSAs that SARSS-2A provides for divisional MMC managers. Additionally, it maintains the demand history files used for demand analysis and the interface with the finance system. SARSS provides the source data necessary for accurate ITV data.

STANDARD INSTALLATION DIVISION PERSONNEL SYSTEM (SIDPERS)

SIDPERS provides automated personnel support for active and reserve Army soldiers. It supports strength accounting, personnel management, personnel actions, and exchange of information with other automated systems. SIDPERS provides commanders the ability to optimize allocation and use of personnel assets to meet peacetime, mobilization, and wartime personnel service requirements. TC-AIMS II at the unit level will receive personnel data from SIDPERS in order to develop passenger manifests and deployment lists. The replacement for SIDPERS is in the early stages of development. It is a joint system known as the Defense Integrated Military Human Resources System (DIMHRS).

STANDARD PROPERTY BOOK SYSTEM – REDESIGN (SPBS-R)

SPBS-R, which is migrating into a GCCS-Army module, is an automated system that provides on-line management information and automated reporting procedures for property book officers. It also produces company-level hand receipts. With TC-AIMS II fielding, SPBS-R will interface and provide unit equipment list update capability. SPBS-R performs automated reporting of assets to support Army Total Asset Visibility (ATAV). Units drawing Army War Reserve Prepositioned Stocks download equipment data from the AWRDS AIS to SPBS-R and then transfer the information to TC-AIMS II to develop the UDL.

TRANSPORTATION COORDINATOR – AUTOMATED COMMAND AND CONTROL INFORMATION SYSTEM (TC-ACCIS)

TC-ACCIS is an information management and data communications system that Army units (active and reserve) use to plan and execute deployments. System capability includes the ability to create and maintain unit movement data, prepare convoy requests, create military shipping labels and other movement documentation, and prepare vehicle load cards and vehicle/container packing lists. Selected TC-ACCIS functionality will migrate to TC-AIMS II. Units maintain their AUEL and develop their UDL using TC-ACCIS. TC-ACCIS software resides on computers at the ITOs of CONUS installations and ITOs or movement control units in overseas theaters. The ITO, using the central computer, will consolidate requirements and transmit equipment lists and transportation requests to systems outside TC-ACCIS. For example, CONUS ITOs transmit AUEL and UDL to FORSCOM's COMPASS database. The information can then be used to update JOPES. Through TC-ACCIS, the ITO also provides MTMC the deployment requirements (such as UDL), domestic routing requests, export traffic release requests, and passenger transportation requirements.

TRANSPORTATION COORDINATORS' – AUTOMATED INFORMATION MANAGEMENT SYSTEM II (TC-AIMS II)

TC-AIMS II is being developed as the deployment system of the future and will replace TC-ACCIS, DAMMS-R, and selected other Army transportation systems. It is a DoD system being designed for use by all Services. It will support all unit and installation deployment, redeployment, and retrograde operations requirements. TC-AIMS II will operate in conjunction with the GCSS-Army and MTS to provide the automated tools needed for successful distribution management. TC-AIMS II will have the ability to produce linear bar codes, 2D bar codes, military shipping labels, optical memory cards, write radio frequency tags and in the future, produce Smart Cards.

TC-AIMS II will provide the capability to automate unit movement and installation transportation office/traffic management office (ITO/TMO) planning and execution procedures from both in-garrison and deployed field environments. It also provides an automated information management capability to managers involved with movement control and allocation of common-user land transportation in a theater of operations. TC-AIMS II will provide needed data to the Global Transportation Network and C2 systems at various command levels

TC-AIMS II will operate in garrison to support daily military transportation requirements, transportation and specific deployment-related deliberate planning requirements, and transportation and deployment-related execution requirements. The garrison configuration will use existing base communications. TC-AIMS II will have the capability to provide support in field conditions, including reception, staging, onward movement, and integration (RSO&I) operations. Units with deployment, movement control, or mode operations missions will deploy with their own TC-AIMS II hardware platforms.

For movement control organizations, TC-AIMS II will provide an automated capability to forecast the arrival of personnel, intertheater cargo, containerized shipments and intratheater shipments. It will also maintain visibility of command-interest cargo throughout the theater. Movement control elements will have the capability to coordinate and provide transportation services to shippers, carriers, and receiving activities. Automated functions include documenting transportation movement requests, tasking mode operators, forecasting, and reporting container and cargo movements. Mode operators will have the automated capability to receive commitments, task specific assets, and maintain fleet asset status data. Other capabilities include scheduling and de-conflicting convoy movements, maintaining unit location data, and maintaining in-transit cargo and asset movement visibility.

UNIT LEVEL LOGISTICS SYSTEM (ULLS)

ULLS is an automated system that processes PLL transactions into The Army Maintenance Management System and provides an automated interface with the Standard Army Retail Supply System and the Standard Army Maintenance System. ULLS is fielded in multiple packages; ULLS-S4, ULLS-G (ground) and ULLS-A (air). ULLS will migrate into GCSS-A and interface with TC-AIMS II to support movement planning. By uploading ULLS information into TC-AIMS II upon alert notification, the UMO will have the current maintenance status of all unit equipment when developing the UDL.

WORLDWIDE PORT SYSTEM (WPS)

WPS is the MTMC worldwide unclassified system for managing export and import of DoD cargo at water ports. It provides detailed data concerning items of cargo arriving, departing, and on-hand at the water terminal. WPS collects cargo data for surface movements; captures receipt, staging, and loading data at ports; and generates the ship manifest/booking upon completion of vessel loading. WPS supports ITV for both general cargo and unit moves. It produces those reports necessary for terminal operations and generates the MILSTAMP ocean cargo manifest. WPS will produce and read/interrogate AIT data storage devices (bar code and RFID) through a business process server. WPS receives advanced data from TC-AIMS II and IBS and provides ITV data to GTN.

SECTION II – SATELLITE TRACKING SYSTEMS

DEFENSE TRANSPORTATION TRACKING SYSTEM (DTTS)

The mission of DTTS is to ensure the safe and secure movement of all DoD sensitive conventional arms, ammunition and explosives and other sensitive material using satellite technology and 24-hour staff oversight, and to support DoD's ITV and TAV initiatives. DTTS monitors all sensitive shipments including non-ordnance related classified, pilferable, hazardous, and high value cargo moving from consignor to consignee. Monitoring is accomplished by using periodic satellite positioning and other coded/text messages from equipped vehicles. DTTS also identifies and coordinates responses to in-transit accidents/incidents. DTTS provides ITV and expedites movements within CONUS for all military services, and other DoD and government agencies and programs. The ITV data is also provided to GTN.

DEFENSE TRANSPORTATION REPORTING AND CONTROL SYSTEM (DTRACS)

DTRACS is the satellite tracking system similar to DTTS but currently used in the USEUCOM theater of operations. United States Forces Korea (USFK) uses a similar satellite tracking system called OmniTRACS. The system has five components – a subscriber unit, a satellite, an earth station, a network control center, and logistics managers. A subscriber unit is installed on the transportation platform being tracked. The subscriber unit can be queried by satellite giving the transponder location as determined by triangulation or GPS. The satellite passes the information to the earth station which is connected to the DTRACS server. The control center stores information in the DTRACS server. Logistics managers access the server to receive information from subscriber units and send information to the subscriber unit. DTRACS monitors the transportation platform, not the associated cargo. For ITV reporting to work with DTRACS, the subscriber operator must currently key in essential data fields relating to the equipment being moved. Without this operator entry, ITV of moving equipment is not currently possible.

MOVEMENT TRACKING SYSTEM (MTS)

MTS is a satellite tracking system currently being developed that will be installed on all common user logistic transport (CULT) vehicles and selected CSS and CS tactical wheeled vehicles and Army watercraft. MTS will support force projection through the full spectrum of military operations. The system's integration with TC-AIMS II and GCSS-Army will provide commanders and distribution managers an unprecedented movements tracking, control, and management capability. It will provide real-time information on the location and status of distribution platforms using cabin console-mounted hardware and satellite technology. MTS will incorporate various technologies including GPS, AIT, vehicle diagnostics, and non-line of sight communication and mapping. It will provide flexibility and control over distribution operations to include the ability to re-route supplies to higher priority needs, avoid identified hazards, and inform operators of unit location changes. MTS will be used primarily to enhance distribution operations from the POD to the brigade rear boundary. MTS control stations will be established in DMCs, movement control elements, distribution terminals, and mode operator headquarter locations. MTS provides the distribution system the capability to:

- Track the location of vehicles and communicate with vehicle operators (US and HN).
- Provide real-time in-transit visibility (ITV) of movements within a theater.
- Redirect movements based on changes to battlefield requirements.

APPENDIX D

Wartime Executive Agency Responsibilities

This Appendix discusses the Wartime Executive Agency Program and focuses on missions that may involve AIT responsibilities for the Army Service Component Command. FM 100-17-3, *Reception, Staging, Onward Movement, and Integration,* contains a detailed list and explanation of all the Army WEAR responsibilities.

GENERAL

WEAR program responsibilities of an executive agent are:

- Implement and comply with the relevant policies and directives of the Secretary of Defense (SECDEF).
- Ensure proper coordination among military departments, the combatant commands, the Joint Staff, the SECDEF, Defense agencies and DoD field activities as appropriate for the responsibilities and activities assigned.
- Issue directives to other DoD components and act on behalf of the SECDEF to the extent authorized in the directive establishing the executive agent.
- Make recommendations to the SECDEF for actions regarding the activity that designated the executive agent, including the manner and timing for dissolution of these responsibilities and duties.
- Perform such other duties and observe such limitations as set forth in the directive establishing the executive agent.

2-16. Following is a listing of commonly recognized Army Service component WEAR responsibilities with AIT implications.

Table D – 1 Common WEAR Responsibilities with AIT Implications

Army WEAR Requirements	Service Component Supported
Inland Logistics Support	USMC
Inland Class I	All Services
Supply Support of UN Peacekeeping Forces	UN
Operation of Common User Ocean Terminals	All Services
Intermodal Container Management	All Services
Common User Land Transportation In-Theater	All Services
Log Applications of Automated Marking & Symbols	All Services
Single Manager for Conventional Ammunition	All Services
Chemical Munitions	All Services
Disposal of Waste Explosives and Munitions	All Services

- Geographic combatant commanders have a number of options when establishing their theater support systems. Based on the type of Service support agreement, geographic combatant commanders assign logistics responsibilities. They may use either the dominant-user or the most-capable-Service concept. Regardless of the method, it should allow the components to use the common-user system for requirements that exceed organic capabilities. When

implementing a concept, the combatant commander should plan for contingencies that would require a different arrangement.

DOMINANT-USER CONCEPT

The geographic combatant commander assigns the Service component that is the principal consumer responsibility for providing or coordinating logistics support to the other Service components in the theater or designated area.

MOST-CAPABLE-SERVICE CONCEPT

The geographic combatant commander assigns responsibilities to the Service component most capable of performing the mission. Usually, the most-capable-Service arrangement is the most efficient and flexible.

AIT IMPLICATIONS

The WEAR program generates special AIT considerations for the Army Service Component Commander and the Theater Support Command that are not present in all Army operations. When establishing the theater logistics support plan, the TSC command and staff must coordinate with other Services for ITV of sister-Service equipment moving on Army assets. This plan must be coordinated not only with the other Services in-theater but also with the sister-Service agencies and organizations outside the theater that will be sending material to the theater during the operation. A brief listing of AIT related issues that are impacted by WEAR requirements follows:

- How does the Joint movement and ITV plan address Army AIT support for the data collection and reporting of ITV information of sister Services movements.
- What procedures are in place that identify to sister-Services (both in and out of the theater) requirements for marking their equipment to accommodate ITV data capture and reporting by in-theater Army AIT assets.
- What is the plan to pass sister-Service equipment back to their control in the tactical assembly area or other designated locations. How will information on this battle handoff be collected and reported.
- What is the automated information system interface to allow ITV tracking by all Services involved with each shipment. TC-AIMS II and GTN provide a common operating environment for this process.
- Are there any satellite tracking requirements for sister-Service assets and what are the procedures to ensure that the mission is accomplished. What Service will provide, install, and remove satellite transponders for the sister-Service assets.
- What are the accountability procedures for AIT data storage devices, e.g., RFID tags and OMCs that are provided by the Army to collect and report data on the movement of sister-Service shipments and units.

APPENDIX E

Department of Defense (DoD) Organizations and AIT Missions

This appendix addresses the primary organizations involved in the mobilization, deployment, redeployment, and demobilization (MDRD) processes that have an assigned, related, or potential AIT mission. This appendix only lists the responsibilities or requirements that impact AIT. Many of the organizations have numerous other responsibilities and functions during the MDRD process.

DEPARTMENT OF DEFENSE

Deputy Under Secretary of Defense Logistics (DUSD(L))

The primary DoD office involved with logistics is the office of the Deputy Under Secretary of Defense (Logistics) (DUSD(L)). DUSD(L)s mission is to provide responsive support to ensure readiness and sustainability for the Total Force in both peace and war. As part of this mission DUSD(L) is responsible for integrating AIT into logistics operational procedures to facilitate the collection of initial source data, reduce processing times, improve accuracy, and enhance asset visibility throughout the DoD. In January 1997, DUSD(L) established the AIT Task Force to develop a logistics AIT concept of operation. In November 1997 the Logistics Automatic Identification Technology Concept of Operations was approved. The CONOPS formed the basis for the DoD AIT policy for logistics operations. In March 2000, the DoD Implementation Plan for Logistics Automatic Identification Technology was published. These two documents are the guide for establishing AIT policy and use throughout the DoD. Key to the documents are the requirements that AIT application and fielding be compatible throughout all DoD logistics functions (supply, distribution, maintenance, and transportation) and commercial distribution operational procedures that support the DoD logistics pipeline.

Defense Logistics Agency (DLA)

By joint memorandum, the Deputy Under Secretary of Defense for Logistics (DUSD(L)), as the Defense Secretary's Principal Staff Assistant (PSA) for Logistics, and the Joint Staff Director for Logistics (J-4) designated the Defense Logistics Agency (DLA) as the Executive Agent (EA) to lead the initiatives for further development and implementation of the DoD Logistics AIT Program. The Deputy Director, DLA established the DoD Logistics AIT Office to manage the DoD Logistics AIT effort. The EA will oversee the DoD Logistics AIT Program (responsibilities directed by the DoD Logistics AIT Concept of Operation (CONOPS) and DoD Logistics AIT Implementation Plan).

Director of Logistics, Joint Staff (JS J4)

The Logistics Directorate, JS J4 provides strategic lift, logistics, medical and engineering advice to the Chairman of the Joint Chiefs of Staff and the Unified Commands. The objective is to assist in the successful execution of joint and combined military operations in a joint, effective and efficient manner. The Logistics Information Systems Division in the JS J4 has oversight for implementation of AIT for joint operations. The Deployment Division of the JS J4 has oversight for all joint deployment matters.

DOD LOGISTICS AUTOMATIC IDENTIFICATION TECHNOLOGY OFFICE

The Director DLA, as the Executive Agent for DoD AIT, established the DoD Logistics AIT Office to serve as the proponent to manage the AIT effort. The office performs the central role as functional integrator with the mission to promote, manage, coordinate, and document the application of DoD and Joint Logistics AIT doctrine, technologies, and processes in support of the warfighters including the CINCs, Joint Task Force (JTF) Commanders, Military Services, and DoD activities. The DoD Logistics AIT Office will serve as the proponent for identifying and promoting optimum logistics AIT applications and will lead the logistics AIT integration effort DoD-wide. It will assist the Services and Agencies to ensure the logistics AIT policies, processes, plans, programs, and procedures are fully synchronized, integrated, and institutionalized in consonance with the DoD Logistics Strategic Plan, DoD Logistics AIT CONOPS, and DoD Logistics AIT Implementation Plan. The DoD Logistics AIT Office will standardize, in conjunction with the Services, Agencies, and USTRANSCOM, the architectural framework for AIT and logistics systems to maximize efficiency and effectiveness.

UNITED STATES ARMY LOGISTICS INTEGRATION AGENCY (LIA)

2-17. LIA is responsible for the functional lead in all matters concerning AIT hardware, software, development, and coordination of commercial standards integration. A subordinate element of LIA is The Army AIT Coordinating Group (AIT CG). Created in July 1997, the AIT CGs mission is to effectively focus the Army's collective body of expertise on resolving AIT interoperability problems with logistics Standard Army Management Information Systems (STAMIS) and doctrine. The AIT CG will:

- Objectively evaluate and assess emerging AITs in light of current or emerging requirements.
- Develop effective funding, maintenance and implementation strategies for integration of AIT into the logistics automation processes (including life cycle and/or sustainment support).
- Effectively integrate commercial AIT media and standards, to include a support package, into Army logistics automation.

PROGRAM EXECUTIVE OFFICE STANDARD ARMY MANAGEMENT INFORMATION SYSTEMS (PEO-STAMIS)

2-18. PEO-STAMIS is responsible for acquiring, implementing, and integrating systems like AIT into current and emerging AISs. A subordinate organization of PEO-STAMIS is the Product Manager – Automatic Identification Technology (PM-AIT). PM-AIT has the dual mission of managing and directing AIT acquisition programs for DoD and the Army. PM-AIT provides the Department of Defense and other selected non-DoD agencies with centralized product procurement and management services to support automatic identification technology. The objectives of the AIT program are to provide:

- Common hardware and software for automatic collection, storage, retrieval, transmission, and receipt of data.
- Standardization and interoperability among Government users of AIT equipment.

- Flexible systems and equipment that grow in size and capability, adapting to the needs of the Government.

UNITED STATES ARMY MATERIAL COMMAND (USAMC)

USAMC is responsible for the Army's automation requirement for strategic (wholesale) logistics. USAMC determines the AIT organizational requirements, develops and issues AIT application doctrine, tactics, techniques, procedures, and training for wholesale logistics. Additionally, by direction of the Chief of Staff of the Army, USAMC is responsible for management and accountability of all Army-owned war reserve operational project equipment and supplies worldwide, except Class VIII. This includes the AWR-3 stocks prepositioned aboard strategic vessels at sea. USAMC manages the use of AIT in prepositioned war reserve stocks through its subordinate command U.S. Army Field Support Command (Provisional) (FSC).

U.S. Army Field Support Command (FSC) (Provisional)

FSC is a subordinated command of USAMC. FSC is responsible for managing all Army prepositioned stocks, (both land and afloat). All Army Prepositioned Stocks are managed using the Army War Reserve Deployment System (AWRDS) AIS. Bar codes are attached to all equipment maintained in APS sites and are used to expedite the transfer of equipment from FSC to the using unit during emergency and routine draws. Other than maintaining the bar codes attached to APS stocks, FSC has no other AIT missions relating to force projection operations.

DEPARTMENT OF THE ARMY DEPUTY CHIEF OF STAFF FOR LOGISTICS (DA DCSLOG)

DA DCSLOG is responsible for the development, supervision, and implementation of logistical AIT applications into Army automated information systems for supply, maintenance, transportation, readiness, troop support and energy.

DA DCSLOG, Directorate for Plans and Operations (DA DCSLOG DPO)

DA DCSLOG DPO coordinates DCSLOG priorities in planning, programming, budgeting and execution of AIT initiatives through the planning, programming, budgeting, and execution system (PPBES).

DA DCSLOG, Directorate for Transportation, Energy, and Troop Support (DA DCSLOG DTETS)

DA DCSLOG DTETS provides transportation and strategic mobility input to AIT development in support of MDRD policy and doctrine.

DA DCSLOG, Directorate for Supply and Maintenance (DA DCSLOG SM)

DA DCSLOG SM develops policy, plans, and provides oversight of the Army AIT initiatives worldwide for supply, maintenance, and integrated logistic support missions.

PROJECT OFFICE, TACTICAL MANAGEMENT INFORMATION SYSTEMS (PO TACMIS)

PO-TACMIS is responsible for providing the logistical readiness and distribution of AIT equipment.

UNITED STATES ARMY COMBINED ARMS SUPPORT COMMAND (USACASCOM OR CASCOM)

CASCOM is the combat developer responsible for Army automation requirements for tactical (retail) logistics and DOTLMS, (doctrine, organizations, training, leader development, materiel and soldiers.) In this capacity, CASCOM is responsible for battlefield distribution doctrine, which AIT supports through the logistical AISs. CASCOM determines the AIT organizational requirements (basis of issue plans – BOIPs), and develops and issues AIT application doctrine, tactics, techniques, procedures, and training.

US TRANSPORTATION COMMAND (USTRANSCOM)

USTRANSCOMs mission is to provide air, sea, and land transportation to the DoD in peace and war. To assist in meeting their mission requirements USTRANSCOM has developed the Global Transportation Network (GTN). When the system is fully developed, GTN will provide ITV from fort to foxhole, including direct vendor deliver (DVD) from commercial sources of supply. GTN receives its in-transit visibility information from a variety of sources. GTN will collect data from source systems and integrate that information into a single database that provides ITV, C2, and business operations applications and information to support the National Command Authorities (NCA), Commanders in Chiefs (CINCs), the military services (Air Force, Army, Navy, Marines), and other Department of Defense (DoD) customers. GTN provides the ITV that enables users to track the identity, status, and location of DoD unit and non-unit cargo, passengers, patients, forces, and

military and commercial airlift, sealift and surface assets from origin to destination, during peace, contingencies, and war. The data timeliness standards required in the DoD AIT Implementation Plan are based on ITV in GTN. To provide users with the right information, at the right time, and at the right level of detail, GTN provides extensive interactive and customization capabilities. GTN will provide customer information to lift providers so they can proactively support the stated needs of Defense Transportation System (DTS) customers. Likewise, GTN will provide customers with information to better manage their warfighting and logistics situation. GTN will integrate the current process of satisfying transportation requirements in peace and war using DoD (primarily DTS) and commercial automated transportation systems. Many organizations, from both the DoD and commercial industry are responsible for managing their existing and future automated systems and needs. USTRANSCOM is responsible for ensuring those DoD and, to the maximum extent, commercial industry automated transportation systems are developed, integrated, and maintained to support the transportation community as effectively and efficiently as possible. Electronic Commerce (EC)/Electronic Data Interchange (EDI) will provide ITV of DoD cargo moving via commercial carrier, which is estimated to be between 60 and 80 percent of all DTS movements. USTRANSCOM has three transportation component commands that execute the day to day operations of the DTS. These commands are Military Traffic Management Command, Military Sealift Command, and Air Mobility Command.

Military Traffic Management Command (MTMC)

MTMC is the Army's transportation component command of USTRANSCOM. MTMC provides the DoD with worldwide single water port management, transportation and traffic management services, deployment planning, and transportation engineering support. MTMC operates three primary AISs that receive and report ITV data. IBS receives UDLs from TC-AIMS II and other user AISs in CONUS, along with movement's information from commercial shippers and carriers. IBS passes this data to WPS and GTN in CONUS. OCONUS WPS receives ATCMDs directly from TC-AIMS II and other AISs. WPS passes this data to two AISs, GTN and ICODES. ICODES takes the data and creates vessel stow plans. MTMC will primarily use RFID read capability for all equipment arriving and leaving the port by land transportation and linear and 2D bar codes scans with HHI and RFDC data transfer to WPS for internal port operations. MTMC will pass ITV movement data to GTN for arrival and departure of all Army equipment entering and leaving common-user water terminals by land transportation, and the arrival of all equipment via ocean transportation. WPS has the capability to read and produce bar codes and RFID tags.

Air Mobility Command – Tanker Airlift Control Element (AMC-TALCE or TALCE)

AMC's mission is to provide airlift, air refueling, special air mission, and aeromedical evacuation for U.S. forces. AMC also supplies forces to theater commands to support wartime tasking. As the Air Force component of the United States Transportation Command, AMC is the single manager for air mobility. The primary AMC element that Army units will interface with is the TALCE. The TALCE is a command and control organization deployed to support strategic and theater air mobility operations at fixed, en route, and deployed locations where air mobility operational support is nonexistent or insufficient. The TALCE provides on-site management of air mobility airfield operations to include command and control, communications, aerial port services, maintenance, security, transportation, weather, intelligence, and other support functions, as necessary. The TALCE is composed of mission support elements from various units and deploys in support of peacetime, contingency, and emergency relief operations on both a planned and "no notice" basis. AMC and TALCE elements will primarily use GATES/RGATES as the AIS to support airfield operations and provide ITV data to GTN. The TALCE will accept aircraft manifest data from the unit or DACG, and scan bar codes or swipe Smart Cards to verify the information.

Military Sealift Command (MSC)

The mission of MSC is to provide ocean transportation of equipment, fuel, supplies and ammunition to sustain U.S. forces worldwide during peacetime and in war for as long as operational requirements dictate. During a war, more than 95 percent of all the equipment and supplies needed to sustain the U.S. military are carried by sea. Army prepositioned afloat stocks are also maintained on MSC chartered vessels. Although a major player in the defense transportation system, MSC has no AIS or AIT mission in support of ITV and force tracking. MSC reports vessel arrival and departure at PODs through their normal communications channels. Vessel manifests are prepared and transmitted by the Military Traffic Management Command. APS-3 stocks are maintained onboard the vessel by the Army Material Command.

FORCES COMMAND (FORSCOM)

2-19. FORSCOM serves as the DA executing agent for CONUS force mobilization, deployment, and demobilization planning and execution. Responsibilities include publishing planning directives and guidance to its various subordinate commands and other organizations with MDRD missions. These organizations include Continental United States Armies, major troop units, FORSCOM installation commanders, installations belonging to other MACOMs which are designated as Power Projection Platforms or Power Support Platforms, State Adjutants General (in consonance with the NGB), and the United States Army Reserve Command. As the major force provider in most MDRD operations, FORSCOM has several AIT/AIS related responsibilities in addition to providing planning guidance and directives. These responsibilities include:

- Providing guidance to ensure that deploying units standardize and properly create accurate UDLs, passenger manifests, and AIT data storage devices (primarily bar codes and RFID tags).
- Assisting installations so they can perform the following AIT/AIS functions:

- Establishing AIT/AIS networks that allow for sufficient C2 and ITV reporting of all movements entering and leaving the installation during deployment and redeployment, and for providing required support at en route locations and POEs.
- Coordinating with DA for resourcing installations with the necessary AIT hardware to produce all AIT data storage devices (bar codes, optical memory cards, RFID tags, and Smart Cards). LIA is purchasing the majority of the initial fielding levels of AIT and the Army is resourcing TC-AIMS II fielding.
- Establishing, monitoring, and enforcing common standards for the use of AIT by all FORSCOM organizations and Power Projection and Power Support Platforms.
- Providing additional communications, power, and contracted support for AIT requirements that exceed installation or port capabilities.

Deploying Units

2-20. All deploying units have significant AIT responsibilities. They must provide the initial source data for their unit equipment and personnel, and they must ensure that all equipment is properly marked with accurate and readable AIT data storage devices (bar code and RFID). Unit AIT responsibilities include:

- Using AIS (TC-AIMS II) to create an accurate deployment equipment list and passenger manifest.
- Accurately capturing the data pertaining to equipment weights and dimensions.
- Accurately capturing data on the content of containers and multipacks.
- Using the information in TC-AIMS II to create accurate and readable AIT data storage devices.
- Ensuring every piece of deploying equipment has an accurate and readable Military Shipping Label, and when required, a RFID tag.
- Properly applying AIT data storage devices to deploying equipment to prevent loss or damage during shipment.
- Ensuring every deploying soldier completes the SRP program and receives a Smart Card.
- Passing accurate source data to higher headquarters and supporting organizations for ITV and force tracking purposes.

Power Projection Platforms/
Power Support Platforms (PPP/PSP)

2-21. In an effort to streamline the mobilization and deployment process, the Army has designated 15 installations as PPPs and an additional 12 installations as PSPs. The role of these PPPs/PSPs is to deploy Army units assigned to CONUS. The FORSCOM Commander's Policy states that in the deployment process, movement of units after selection and tailoring is the responsibility of the installation commander using his installation staff. The goal is to unburden the tactical commander and to allow focus on supported CINC requirements. The installation commanders have the authority to task both Active and Reserve component units to perform specific unit movement functions. In addition to installation location responsibilities, FORSCOM has aligned strategic seaports and aerial ports with PPP/PSP installations. These installations must provide A/DACG and PSA support to their designated air and seaports as

directed in Appendices B and C of FORSCOM/ARNG Reg. 55-1, *Unit Movement Planning*. Specific AIT related responsibilities of PPPs/PSPs are:

- Ensure each installation/activity/assigned unit and supported unit maintains current unit movement data.
- Review and validate unit movement data for accuracy.
- Ensure that all unit equipment is properly marked prior to movement via any mode.
- Prepare and submit departure reports (TC-AIMS II).
- Monitor movements and provide assistance as required.
- Develop an AIT/AIS network that will capture arrival and departure data for all units and equipment involved in the MDRD process.
- Provide training for unit movement officers in the use of AIT/AIS.
- Instruct units in the proper placement of RFID tags.
- Ensure MSLs have been generated and affixed to equipment before movement.
- Provide Port Support Activities and Arrival/Departure Airfield Control Groups and ensure these elements have the necessary AIT/AIS (if tasked with AIT mission) to accomplish their assigned mission.

Deployment Support Brigades (DSB)

DSBs are United States Army Reserve units assigned to MTMC. They are organized to provide documentation, load-out assistance, and linkage between the installation and the SPOE. They are employed in six man teams called Deployment Support Teams (DST). DSTs are associated with PPPs and focus their efforts on deploying units. The CG FORSCOM and the CG MTMC approved the DSBs alignment with PPPs to establish long-term liaison and association. DSTs assist in the planning and execution of equipment staging and out-loading for surface movements.

Arrival/Departure Airfield Control Groups (A/DACG)

2-22. The A/DACG is designed to assist Air Mobility Command and the deploying unit in receiving, processing, and loading/unloading personnel and equipment. The capabilities of the A/DACG are tailored based on the mission and the military units performing aerial port operations. A/DACGs that are comprised of elements from a Cargo Transfer Company will possess TC-AIMS II and associated AIT hardware IAW the TC-AIMS II BOIP. Ad hoc A/DACGs tasked with AIT responsibilities will need AIS and AIT hardware support from the organization providing the A/DACG, the Supporting installation, or the MACOM whose area of responsibility encompasses the APOE/APOD. A/DACG AIT responsibilities could included the following:

- Scan all Smart Cards to capture movement data on the arrival and departure of Army personnel transiting the airfield. The primary purpose for collecting this data is to provide ITV data to GTN. The data may also be used for internal control and accountability of personnel transiting the passenger holding areas. The A/DACG may also be tasked with scanning Smart Cards for members of other Services and NEO participants depending on the theater ITV plan.
- Assist the unit in correcting AIT data storage device deficiencies. This requirement will necessitate the A/DACG having access to GTN or an AIS that has the source data on

equipment flowing through the airfield. For airfields a considerable distance from deployment origin or Army theater reception facilities, the organization providing the A/DACG may consider equipping the A/DACG with a Smart Card production capability.

- Use HHI to check RFID battery life. Replace batteries if necessary. This will require prior planning to ensure that a supply of RFID batteries are on hand and procedures are established to restock supplies if battery levels on hand are depleted. A second option if HHIs are not available is to go to the appropriate web-enabled regional ITV server and check the battery life status at its last read station. Any tags reporting low batteries could be corrected upon arrival.
- The A/DACG may be required to report the ground movement of Army passengers and equipment to GTN or a regional ITV server. This may require the establishment of a RFID interrogator network, or using HHI at equipment arrival and departure locations. This requirement must be coordinated between the A/DACG, the port MCT if established, and the MACOM or SI providing the A/DACG. Arrival and departure movement information must be visible in GTN within one hour of the event occurrence.

Port Support Activity (PSA)

2-23. PSAs are normally provided by the Supporting Installation or an ASCC subordinate unit responsible for the geographical area encompassing the port complex. PSAs for redeployment SPOEs may be from the redeploying units. The PSA is in direct support of the port manager (MTMC when operating in common-user ocean terminals). The capabilities of the PSA are tailored based on the mission, port capabilities, and the planned throughput capacities of the port facility. The PSA ensures that the deploying/redeploying units' equipment is properly prepared for loading or onward movement. PSAs from Cargo Transfer Companies will possess TC-AIMS II and associated AIT. Ad hoc PSAs assigned AIT responsibilities will need AIS and AIT hardware support from the organization providing the PSA, the Supporting Installation, the MACOM whose area of responsibility encompasses the SPOE/SPOD, or from the port manager. PSA AIT responsibilities will be primarily based on the needs of the port manager and could included the following:

- Correcting AIT data storage device deficiencies as equipment passes through the port staging area.
- Verifying RFID battery life and replacing batteries as required.
- Using HHIs to capture the movement of equipment loading and discharging from the vessel during deployment and redeployment operations. This data can be transferred to a supporting AIS via RFDC or batch downloading and the information used for internal port control.

COMBATANT COMMANDS

2-24. Combatant commands are unified or specified commands with broad continuing missions under a single commander. They typically have geographic or functional responsibilities. Combatant command CINCs develop OPLANs, CONPLANs, OPORDs, and force requirements to address the range of military operations that may occur within their respective areas. CINCs are designated as "supported" or "supporting", depending on the mission. CINCs plan the deployment and employment of forces in their theaters of operation.

- Supported CINCs provide authoritative direction to subordinate commands. They plan and execute the RSO&I, sustainment, retrograde, and redeployment of forces from the theater of operations. They organize available logistical resources to support JRSO&I, sustainment, retrograde, and redeployment. The following theater support tasks may involve or be impacted by AIT.
  - Develop the TPFDD in coordination with supporting CINCs and component commands. This task includes developing the timing and sequencing of deploying and redeploying forces in the TPFDD.
  - Validating the theater's JRSO&I infrastructure to include the theater movement plans and the theater ITV plan (normally developed by the J4 staff).
  - Develop LOC operations to include ITV capabilities.
  - Develop the movement control and force tracking requirements for the Joint force.
  - Coordinate with Supporting CINCs, agencies, and commands to ensure they understand and can support theater plans.
  - Coordinate ITV data collection, processing, and dissemination of information to support theater and global ITV and JTAV informational needs.
  - Designate, in broad terms, the area in which JRSO&I, marshaling, and staging will occur.
  - Establish, as required, theater level Joint Transportation Boards, and Joint Movement Centers to control the theater movement planning and execution.
- Supporting CINCs provide personnel, equipment, supplies, and services to the Supported CINC. These functions include:
  - Provide input to the Supported CINC on their ability to support theater plans.
  - Provide CSS and CS units to the Supported CINC enabling the Supported CINC to meet force closure objectives.
  - Verify supporting movement data.
  - Regulate the support flow to maintain balance and synchronization while still meeting the Supported CINCs force closure objectives.
  - Provide guidance to subordinate elements to ensure their AIT missions support ITV requirements and force closure objectives of the Supported CINC. (This includes ensuring all deploying equipment has applicable AIT data storage devices, and developing an ITV infrastructure to capture the movement of forces out of the Supporting CINCs AOR.)

Joint Logistics Staff (J4)

The J4 is the logistics directorate of a Joint staff and the principal advisor to the JFC relating to logistics matters. The J4 plans and executes the JRSO&I, sustainment, retrograde, and redeployment mission for the JFC. Normally the J4 will form a Joint Transportation Board or a Joint Movement Center. The Joint Movement Center normally is given the mission of managing the movement and tracking of assets moving in, throughout, and from the theater of operations.

Joint Transportation Board (JTB)

JTBs are established at two levels. At the DoD level, the JTB is responsible to the Chairman of Joint Chiefs of Staff. The JTB assures that common-user transportation resources assigned or available to the Department of Defense are allocated as to achieve maximum benefit in meeting Department of Defense objectives. Combatant commanders may establish local JTBs to provide similar functions in the theater of operations.

Joint Movement Center (JMC)

The JMC (if established) coordinates the employment of all means of transportation (including that provided by allies or host nations) to support the concept of operations. This coordination is accomplished through establishment of transportation policies within the assigned area of responsibility, consistent with relative urgency of need, port and terminal capabilities, transportation asset availability, and priorities set by a joint force commander. As part of their responsibility, the JMC develops the Joint Theater ITV plan. The ITV plan explains the requirements and standards for capturing the movement of personnel, units, and sustainment cargo flowing through the theater. The ITV plan covers RSO&I, sustainment, retrograde, and redeployment ITV.

ARMY SERVICE COMPONENT COMMANDER (ASCC/ARFOR)

2-25. The ASCC/ARFOR commander assembles and tailors modules to support the force based on the mission assigned by the JFC. The support structure starts with a nucleus of minimum essential support functions and capabilities focused on force generation within the theater. As the deployed force grows, the support structure gains required capabilities and expands with the theater. At the direction of the supported or supporting CINC the ASCC (normally the G4 staff) performs the following functions in support of theater RSO&I, sustainment, retrograde, and redeployment mission:

- Provides recommendations on proper employment of forces to accomplish the deployment/redeployment mission.
- Designates and deploys the type forces required to support the deployment/redeployment.
- Coordinates requirements for the collection and dissemination of ITV data.
- Conducts joint/interagency liaison to ensure that the Army portion of the ITV plan supports joint/interagency requirements.
- Recommends missions for subordinate forces to ensure that the Army theater ITV plan supports the collection and communications of required ITV data.
- Monitors the movement flow and ensures that the ITV plan is functioning properly. Directs changes as required.

- Provides or coordinates as required for additional AIT hardware, power, and communications support to enable subordinate elements to meet their theater ITV mission.

THEATER SUPPORT COMMAND (TSC)

2-26. The ASCC/ARFOR commander normally establishes a TSC in the COMMZ to orchestrate the Army theater-level distribution system. The TSC is the critical link between strategic agencies and commands and units performing Army RSO&I and distribution in the theater. Key AIT related responsibilities of the TSC include:

- In coordination with the ASCC/ARFOR staff the TSC plans and develops the Army Theater distribution plan. The plan is updated as task organization and area of operations change. As part of this plan the TSC develops and coordinates the theater ITV plan within the COMMZ.
- Normally a distribution management center (DMC) will operate within the TSC support operations staff structure. The DMC, along with functional commands and directorates orchestrates the distribution of all classes of supply and services, and personnel movement supporting the deployed force.

Area Support Groups & Base Support Battalions (ASG & BSB)

2-27. ASGs, BSBs, and other functional commands and organizations are often responsible for supporting operations at theater staging bases, marshaling areas, staging areas, redeployment assembly areas, distribution centers, storage sites, convoy support centers, and NEO sites. They may be required to provide the personnel and equipment needed to operate A/DACGs and PSAs. A material management center (MMC) and a movement control team (MCT) from the TSC normally support the ASGs and BSBs or other designated support organizations at each of the above locations. AIT related responsibilities involving ASG, BSBs, and TSC subordinate elements include the following:

- Establishing an AIT infrastructure at designated locations to collect data on the arrival and departure of all units, equipment, sustainment cargo, and personnel as they move through designated deployment/redeployment staging/marshaling and storage locations in the COMMZ.
- Assisting units in correcting AIT data storage device deficiencies (RFID tags, bar codes, and Smart Cards) as they stage at each location.
- Collecting and reporting the movement of Army personnel and equipment entering or leaving airfields on ground transportation. This will also include the requirement to capture and report movement data on self-deploying Army aircraft. (The Air Force TALCE will capture the arrival and departure data of all Army assets moving by common-user air transport).
- Maintaining, installing, and testing satellite tracking transponders on selected equipment and sustainment shipments as required.

Movement Control Agency (MCA)

2-28. The echelons above corps MCA can be assigned to the TSC or it may be a subordinate command of the ASCC/ARFOR. Doctrinally the MCA is a subordinate command of the TSC. The Army executes COMMZ movement control through an MCA with subordinate Movement Control Battalions (MCBs). The MCA implements theater movement priorities established by

the ASCC with guidance from the TSC. The MCA plans and coordinates RSO&I, sustainment, and redeployment movements so units, personnel, and materiel are delivered to destinations with minimum delays. The MCA also coordinates the movement of shipments into and out of the theater with USTRANSCOMs TCCs. Movement Control Teams (MCTs) are the organizations within the MCA that perform on the ground missions to control and regulate the movement of Army assets in the COMMZ for highway and rail transportation. MCTs coordinate with MTMC and AMC to clear aerial ports and water terminals. AIT related functions of movement control organizations include:

- Maintaining visibility of resources that are being transshipped or transiting theater nodes in order to control the transportation network.
- Recommending site selection for transportation activities (truck terminals, air terminals, railheads, pipeline take-off points, and inland waterway terminals.)
- Establishing en route data collection locations in coordination with the TSC and ASCC. The MCA organization will require assistance from the TSC to execute this mission. Normally the MCA has no power, maintenance, or communications capabilities that will allow for en route data collection and reporting.
- When MTS is fielded, maintain MTS control stations to effectively track and manage the movement of transportation platforms carrying unit equipment and sustainment supplies between nodes in the theater of operations.
- Using TC-AIMS II and associated AIT, report the arrival and departure of Army equipment and personnel moving by ground transportation to/from APOEs/APODs. This requirement may also involve the reporting of self-deploying Army aircraft.

Transportation Mode Operators

2-29. Transportation mode operators at the theater level have no AIT related equipment for tracking and reporting the movements of units, sustainment cargo, retrograde, or personnel, but they play a critical role in the success of the theater ITV and force tracking operation. At the headquarters level, mode operators have access to web-enabled ITV systems that provide them visibility of AIT operations in the theater. Many of the vehicle operators will have satellite transponder equipped prime movers with associated cab-mounted AIS to report movements via satellite tracking systems. Specific tasks that mode operators perform to enhance theater ITV include:

- Knowing where RFID interrogators are located and ensuring that transportation assets equipped with RFID tags pass within their data collection range. (For example, if an airbase has three gates for receiving cargo, and only two are equipped with RFID interrogators, use the two interrogator equipped gates when carrying RFID tagged equipment.)
- Use only designated reception facilities when moving passengers through the deployment/redeployment process. This allows Smart Cards to be scanned and ensures ITV over passenger movements.
- Enter and transmit accurate data on cargo being moved on transportation platforms equipped with satellite transponders. Satellite transponders installed in common user land transportation vehicles can only track the platform, not the associated cargo. Every time the cargo changes, (e.g., a trailer is dropped off and another picked up, pallets off-loaded and others loaded) the operator must key in the new cargo data information and transmit it to the control station in order for transportation managers to be aware of the change. If this process does not occur, the distribution managers will not have accurate ITV data.

CONTRACTORS

2-30. Contractors currently perform critical AIT and AIS support functions throughout the MDRD process. They assist in ensuring that AIT and AIS provide the ITV and force tracking information the systems are capable of generating. Contractor missions relating to AIT include:

- Conducting site surveys and installing the necessary AIT hardware at various deployment/redeployment nodes (e.g. PPPs/PSPs, POEs, PODs, and designated transit points en route).
- Performing maintenance on AIT hardware and data storage devices that are under warranty or contract.
- Developing, testing, installing, and maintaining the automated information systems that use AIT.
- Developing, testing, installing, and maintaining satellite tracking systems.
- Providing training on the capabilities and proper use and care of AIT and supported AIS.

APPENDIX F

RSO&I Enabling Teams & Force Opening Packages

Force projection operations in areas where there is no permanent Army presence requires RSO&I enabling teams that are rapidly deployable, modularly configured, and designed to open an Army theater CSS infrastructure. These enabling teams will deploy with the theater force opening package (TFOP) during unopposed entry operations. The TFOP must have the capability to establish the Army theater distribution system and conduct those operational-level support tasks required to meet ASCC early entry support responsibilities. This appendix addresses the RSO&I enabling teams and theater force opening modules and focuses on their AIT related requirements. More specific details on RSO&I enabling teams and the TFOP are in FM 63-4, *Combat Service Support Operations – Theater Army Area Command,* FM 100-10-1, *Theater Distribution*, and FM 100-17-3*, Reception, Staging, Onward Movement, and Integration*.

THEATER FORCE OPENING PACKAGE (TFOP) MISSION

The mission of the TFOP is to deploy early to a theater and establish the resources, communications, and automation networks necessary to build and support an Army theater distribution system. The TFOP also conducts the initial reception, staging, and onward movement of Army and other Service resources as designated by the ASCC/ARFOR commander. Based on METT-T and guidance from the JFC, the ASCC/ARFOR commander determines the specific mission, organization, command, and support relationships of early entry support forces in a particular operation.

CONTINGENCY PLANNING

Preparation for theater opening begins before the actual deployment of TFOP elements into an area of operations. The TFOP has the capability to conduct home station (power projection platform) contingency planning and interface with appropriate ASCCs and JFCs that are preparing for TFOP employment. This includes the capability to:

- Interface/coordinate with the ASCC/ARFOR commander, JFC, and supporting and supported CINC planners to identify the appropriate Theater Force Opening Module (TFOM) mix required to accomplish theater opening.
- Develop and provide missions, policies, guidance, priorities, and allocations for all TFOP activities/organizations IAW appropriate ASCC/ARFOR commander policies and directives.

COMMAND AND CONTROL

As directed by the ASCC/ARFOR commander, the TSC deploys a headquarters early entry module (EEM) to establish TFOP command, control, communications, and automation (C3A). It interfaces with tactical, joint, and strategic/national CSS systems and synchronizes Army deployment activities theater-wide. The command and control element of the TFOP is the initial EEM that deploys to force projection theaters. It is typically comprised of the TSC headquarters EEM and national strategic-level CSS elements from an AMC logistics support element (LSE), a DLA contingency support team (DCST), and a MTMC port management module as directed by the

JFC/ASCC. The ASCC/ARFOR commander may also designate functional commands to provide C2 of TFOP elements. The technical chains between forward elements of functional commands and their parent commands remain intact. The same is true of the national strategic-level elements. Relationships between the TSC and functional commands are discussed in FM 63-4. Capabilities of the initial C2 element include:

Provide TFOP survey, liaison, and reconnaissance party (SLRP), Army Pre-positioned Afloat (APA) off-load preparation party (OPP), and advance party elements. These three organizations are addressed in more detail later in the appendix.

Exercise control over the theater-level CSS operations directed by the ASCC/ARFOR commander. This includes support to other Services. The headquarters module with assistance from functional command elements refines theater force opening module (TFOM) requirements and updates the logistics preparation of the theater (LPT) and distribution plan. This includes planning and coordinating the necessary AIT/AIS to support ITV and force tracking.

Coordinate theater and strategic-level support requirements.

Plan, manage, and acquire HN real estate. Manage initial local procurement, contracting, and HNS activities. This may include contracting for the power and communications assets needed to support ITV data capture and transmission.

Manage ASCC/ARFOR force generation operations.

ORGANIZATION

A typical TFOP needed during the initial stages of deployment includes transportation, engineer, supply and field service, contracting, ordnance, military police, personnel, finance, and medical modules, as well as any other modules required to meet the mission assigned by the JFC/ASCC. The JFC may also elect to include strategic CSS cells from Army Material Command, The Defense Logistics Agency, and MTMC.

The composition of the TFOP varies throughout the stages of a force projection operation and depends on numerous factors including the type of operation, the nature of the supported ARFOR, the available infrastructure in the theater, availability of contracted support, support provided to and by other Services and allies, and the nature of the threat. TFOP out-sized equipment requiring sealift to force projection theaters is integrated into cargo manifests of current APA vessels.

FUNCTIONAL TFOM

Functional mission-oriented TFOMs of the TFOP are typically configured under tailored battalion-level transportation port, terminal, and motor transport; medical; engineer; multi-functional logistics; and other support task forces as directed by the ASCC/ARFOR commander. Other modules may be included in the TFOP based on METT-TC. All these TFOMs perform the operational and tactical functional missions associated with theater opening and initial entry force generation. The actual functional mission-oriented TFOM mix depends on METT-TC and available in-theater infrastructure. The actual transportation port and terminal TFOM mix depends on the specific theater reception infrastructure. Water terminal TFOMs are only required in theaters supported by a SLOC.

THEATER RECEPTION

TFOP transportation, supply, ordnance, and other required TFOMs establish initial ASCC/ARFOR theater APOD, SPOD, and staging base reception nodes within the theater. This includes the capability to:

- Establish connectivity with GTN which allows access to movement data that is essential to the theater reception process. In addition, the TFOP elements establish other theater automated information systems for ITV and force tracking IAW JFC and ASCC guidance. This may include an RFID interrogation capability and a satellite tracking system.
- Establish and conduct Army or commercial/HNS contract port operations at Army/common-user SPODs. Port operations include beach/port preparation or improvement, cargo discharge, harbor craft services, ship-to-shore cargo movement, movement control, cargo marshaling, documentation, and port clearance. An AIT plan to support these operations must also be developed.
- Establish and conduct air terminal operations at APODs. Air terminal operations include movement control, cargo transfer, unit/cargo marshaling, cargo documentation, and port clearance. Air Mobility Command will report the arrival of all Army personnel and equipment. The TFOM must establish an AIT/AIS system to collect and report movement data for Army elements moving into the theater.
- Establish/supervise contracts for transition of military port operations to commercial/contract/HNS. This includes the transition of AIS and AIT requirements.

Several special theater force opening modules may be required based on the theater and the RSO&I mission. These modules include an Off-Load Preparation Party for AWR-3 stocks, PSA and AACG elements, and the Advance Parties of deploying units.

Off-Load Preparation Party (OPP)

The OPP is a temporary task organization that consists of AMC-LSE personnel, possibly augmented by deploying unit personnel. Its task is to prepare AWR-3 weapon systems and equipment aboard APA ships for operations, off-loading, and issuance to units at the SPOD. Vigorous OPP operations conducted while the AWR-3 ships are en route to the SPOD decrease the deploying unit's stay in the reception and staging areas. The OPP should deploy to meet the APA ships at their homeport or at a point during their transit to the SPOD. Ideally, the OPP should be aboard the APA ships not later than 96 hours prior to the ships' arrival at the SPOD. Upon the OPPs arrival aboard the APA ship, the OPP OIC will report to the APAs shipmaster to obtain specific direction concerning shipboard activities.

If RFID tags are planned for use to monitor ITV and force tracking as the equipment moves from the SPOD to the TAA, one of the OPP tasks could be to provide and write the required tags. Data from the ship manifest could be used to create the tags. As equipment is discharged, the RFID tags would be married up with the appropriate piece of equipment. Currently this is not a doctrinal task for the OPP.

Port Support Activity/Arrival Airfield Control Group (PSA and AACG)

The PSA and AACG are temporary military augmentation organizations comprised of personnel with specific skills. Their mission is to support the port manager in receiving, processing, and clearing cargo at the SPOD/APOD. PSA and AACG units should be prioritized on the TPFDD to arrive prior to main body arrival at the SPOD/APOD. The PSA is in direct support of the SPOD port manager. The AACG may be the senior Army unit operating at an APOD. If PSAs and AACGs are

assigned AIT responsibilities they must have the AIT hardware necessary to support their operation. PSAs and AACGs from TO&E cargo transfer or documentation units will possess TC-AIMS II and a limited AIT capability. PSAs and AACGs from other organizations will need to coordinate with their higher headquarters or the port manager to ensure they have the necessary AIT to support their operations. At seaports, the PSA may be required to install satellite tracking transponders in selected pieces of equipment for real-time ITV data capture and en route communications missions. If this is a theater ITV plan requirement, the PSA must be equipped with the necessary assets to successfully accomplish this mission.

Advance Party

The advance party is a task organization with representatives from the deploying unit and its subordinate units' headquarters. The primary purpose of the advance party is to coordinate and arrange for the reception of the unit's main body. A TC-AIMS II system should deploy in the advance party. Once in the port marshaling area, staging base, or APS-Land draw location, TC-AIMS II can be used to capture the arrival and receipt of all unit equipment. As equipment is received from the port operator (or AMC-LSE for APS-3 stocks) the UMO or S4 representative can use the TC-AIMS II HHI to scan the equipment bar code. Once the equipment is correctly configured for onward movement, the UMO or S4 can enter transportation data received from the supporting MCT and produce new MSLs or RFID tags to support ITV data collection during onward movement. In force projection operations where the unit shipped their equipment from a POE, there should be limited requirements for the unit to make corrections/replace AIT data storage devices. For APS draws, both afloat and land, this will be a significant task. APS stocks are all bar coded but they do not have military shipping labels or RFID tags. These AIT data storage devices have to be produced for all equipment being drawn from the APS site. If this task is not accomplished, no ITV data will be available on this critical equipment as it flows to the integration location.

THEATER STAGING

TFOP transportation, supply, maintenance, personnel, and medical TFOMs establish and conduct initial ASCC/ARFOR theater staging operations. Included in this requirement is the capability to accurately capture the arrival, reconfiguration, and departure of all personnel, unit equipment, and sustainment supplies transiting the TSB. Arrival and departure of assets and personnel transiting the TSB must be reported to GTN within the time standards established in the DoD AIT Implementation Plan. (See Chapter 3, para 3-1.) The use of TC-AIMS II and a robust AIT data collection system will allow for the automatic data capture of equipment and personnel as they transit the TSB. The TSB can use AIT to enhance operational procedures by:

- Establishing a RFID interrogation, bar code scanning, and Smart Card reading network that provides automatic data capture and reporting of equipment and personnel in the various staging locations (e.g., container staging area, convoy staging area, PAX holding area). This information can be used for internal control and accountability of assets within the TSB.
- Using HHI to provide automatic data capture during equipment de-processing and property transfer of pre-positioned unit equipment to assist AMC/USAMMA and unit personnel as required.
- Writing and supervising contracts for transition of selected military staging area operations to commercial contract or HNS elements. Contracts must ensure that no ITV or force tracking data capabilities are lost when non-DoD elements begin performing support missions.

FORCE SUSTAINMENT

TFOP transportation, supply, military police, personnel, maintenance, and medical TFOMs establish theater-level sustainment capability and conduct operational and tactical level sustainment operations. The arrival, departure, and storage of force sustainment cargo must be reported to GTN within the time standards established in the DoD AIT Implementation Plan. AIT can be used to report ITV data and for internal management and control of theater sustainment stocks. AIT can assist these TFOMs in completing the following requirements:

- Establish accountability of operational-level supplies and services, receive and store APS, and provide personnel accountability for filler, casualty replacements, and transitional personnel.
- Establish initial ASCC/ARFOR theater-level distribution management capability by providing in-storage and in-transit asset visibility.

THEATER ONWARD MOVEMENT

TFOP transportation and military police TFOMs establish an onward movement and distribution capability through theater support operations and control center elements. This includes the ability to:

- Establish and operate in-theater force/materiel tracking information management systems (TC-AIMS II) that interface with strategic, joint, and ASCC web-enabled ITV and TAV AIS systems (GTN, regional ITV server, ATAV, and JTAV). TFOMs install, as directed, ITV interrogators at distribution terminals, along LOCs, and at sustainment support nodes.
- Establish ASCC/ARFOR movement management activities and conduct initial movement control operations. Modules coordinate port clearance and inland theater movement of forces and materiel stocks to include establishing ITV and force tracking data collection capabilities.
- Identify MSRs, their capacities, and potential transit points that can be used to capture the movement of RFID tagged equipment.
- Establish and operate the theater distribution infrastructure consistent with the JFC's battlefield framework. Transportation TFOMs provide transportation (Army, HNS, contract, or commercial) support for port clearance and onward movement of units and materiel to the TAA and operational/tactical SSAs. This requirement may include the ability to install, test, and monitor satellite tracking systems to provide the real time data collection of selected equipment and units.

APPENDIX G

SAMPLE UNIT MOVEMENT AND THEATER ITV PLANS

This appendix contains two sample plans to support AIT operations. The first is a sample Unit Deployment Plan that can be used by all deploying units to prepare for movement. This plan is extracted from the movement plans in FM 100-17-4, *Deployment (Draft)* and FORSCOM/ARNG Regulation 55-1, *Unit Movement Planning*. AIT related responsibilities within the plan have been shaded. The second plan is a sample Theater ITV Plan that discusses AIT in support of RSO&I operations.

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SAMPLE UNIT DEPLOYMENT PLAN

UNCLASSIFIED

Classification
Copy no__of__copies
(Issuing Unit)
(Street Address)
(City, State, ZIP Code)
(Date of Plan)

DEPLOYMENT MOVEMENT PLAN (Installation to A/SPOE) (AC) (RC, if required)

References: FM 55-30, FM 100-17-4, FORMDEPS, FORSCOM/ARNG Reg. 55-1, & Installation

Deployment Plan, (Any other maps, SOPs, manuals, etc.) ____ include dates of publications.

Time Zone Used Throughout the Plan:_____

Task Organization

HQ, HHC,___Bn_____,___
Co A _____,__
Co B _____,__
Co C _____,__
Co D _____,__
____Det_____,__

1. SITUATION: This should be a generalization of when/how the plan is to be implemented.

a. Attachments and Detachments: Listed with appropriate units or the word "none."
b. Assumptions: These are conditions a commander believes will exist at the time the plan becomes a movement order. Assumptions are clearly stated and address the following:

(1) Equipment serviceability.
(2) Availability of personnel for movement.
(3) MTOE supplies and equipment to be transported.
(4) Pre-positioned equipment, if applicable.
(5) Vehicles/equipment in maintenance.
(6) Use of modes to APOE/APOE.
(7) Commercial movement.
(8) Automated information system and automatic identification technology to be utilized for the movement.

The following are example assumptions:

(1) All unit equipment will be combat serviceable.
(2) All unit personnel will be available for movement and they will all possess Smart Cards.
(3) All (including excess) MTOE/TDA equipment and supplies will be transported to the theater of operation.
(4) The unit will not draw prepositioned stocks.
(5) Vehicles and equipment in maintenance will receive priority for repair. Vehicles and equipment will be brought to 10/20 standards prior to movement or replacements will be issued.
(6) Organic convoy movements from point of origin to the POE will be administrative.
(7) Personnel will travel by bus, convoys will move administratively and tracked equipment will move via rail.
(8) Unit personnel will move to the APOE aboard commercial bus transportation provided by the ITO office.
(9) All Equipment will be labeled with bar code and military shipping labels. Containers will have RFID tags attached. TC-AIMS II will be the AIS used to maintain the UDL.
(10) Attached units will be assigned in time to update UDL and produce necessary AIT data storage devices (bar codes and RFID).

2. MISSION: A concise statement of what is to be accomplished and its purpose. It accomplishes the following:

a. Identifies unit(s).
b. Identifies origin and destination.
c. Identifies date and time movement begins and ends.
d. Identifies methods of movement: organic/commercial, and mode: truck, rail, air, sea.
e. Identifies reason for moving (OPLAN, etc.).

An example of a mission statement from a deployment movement plan is as follows:

On order, the (unit name)_____will establish staging/marshaling areas and deploy personnel and equipment to perform operations in the designated theater of operations. In the staging/marshaling area, the unit will prepare equipment for strategic lift. UDL and manifests will be updated. MSLs and RFID tags (if required) will be produced and attached to all unit equipment. Soldiers will undergo an SRP and be issued Smart Cards. Units will deploy from installation)_____via APOE_____and SPOE. (Transportation motor pool [TMP]/commercial buses) will transport personnel to the APOE. All roadable vehicles will be convoyed to the SPOE. Non-roadable vehicles will go by rail or commercial truck to the SPOE. Movement will commence IAW the alert order and the N-hour sequence (Annex S). Movement will be by (organic assets to the SPOE, or rail, or commercial truck)____. Order of march will be advance party followed by the main body. Unit will be prepared to deploy on other contingency missions.

3. EXECUTION: This paragraph addresses the necessary planning, coordination, and execution functions that must take place in order to accomplish the mission. Specific tasks are given.

a. Concept of Movement: The concept clarifies the purpose of the plan. It addresses the following (Point of Origin to A/SPOE):

(1) Receipt of movement orders.
(2) Update and validation of AUEL.
(3) Recovery of equipment.
(4) Commercial movement of personnel (buses, etc.).
(5) Deadline to complete packing and loading.
(6) Advance party.
(7) Main body.
(8) Order of march and convoy numbers for highway movement.
(9) Shuttle of equipment (RC only must obtain permission from the MS).
(10) Commercial movement of vehicles/equipment.
(11) Priority of support.
(12) MO/ITO coordination.
(13) ITO designated load dates and locations.
(14) UMO duties and responsibilities.
- Produce UDL and PAX manifest
- Accurately capture data on material stuffed into multipacks, containers, or on pallets
- Update TC-AIMS II
- Produce applicable AIT data storage devices
- Verify AIT data storage devices are readable and accurate.
- Ensure AIT data storage devices are properly attached to all unit equipment.

(15) Projected POEs.
(16) Applicable OPLAN.
(17) Actions at POE (reduction, receipt of cargo, etc.).

Examples of Concept of Movement statements are as follows:

(1) Upon receipt of the alert notification, the first priority will be UMO review of Requests for Commercial Transportation and the AUEL.
(2) To meet installation/POE gate arrival/departure times, the unit will conduct simultaneous coordination, processing, and loading operations using the units N-hour sequence (Annex S).
(3) Start point times are IAW DD Form 1265 (Annex __).
(4) Commercial transportation/support requirements are located at Annex ___).
(5) All organic vehicles will have a driver and assistant driver.
(6) The UMO will coordinate and confirm the following:

(a) Changes to DD Form 1265 (Request for Convoy Clearance).
(b) All equipment has an accurate and readable MSL or other AIT data storage device.
(c) Request for Commercial Transportation with Transportation Office NLT___.
(d) En route stops/halts with appropriate businesses.

(7) Commercial buses will be used to transport personnel and baggage. A troop commander will be designated for each commercial bus.

(8) Supplies and equipment will be packed, cushioned, and/or crated, and loaded on organic vehicles IAW current vehicle load cards no later than (number of hours)____prior to departure. As equipment is packed, TC-AIMS II will be updated in-order to produce accurate RFID tags or other AIT data storage devices. After equipment is configured for movement and all AIT data storage devices created, pass UDL and movement data to higher headquarters and/or installation.

(9) Advance party elements will be composed of personnel, equipment, and documentation required to accomplish tasks identified by the installation and will move by organic convoy IAW Annex ___. Vehicles will infiltrate to (consolidation point)____ where battalion advance party convoy will form. The convoy number will be ___.

(10) Main body organic convoys will depart point of origin IAW Annex ___. Individual convoys will consolidate at (consolidation point)____.

(11) Order of march and convoy numbers will be as follows:
Unit___ Convoy Number ___
Unit___ Convoy Number ___
Unit___ Convoy Number ___
Unit___ Convoy Number ___

(12) Shuttle convoys (will/will not) be used.

(13) Unit supplies and equipment will be prepared for commercial movement by (rail, truck, etc.) ___ IAW the AUEL in the unit load plan not later than (date/time)___. MSLs and RFID tags will be produced, verified for accuracy, and attached before movement to the upload site.

(14) TC-AIMS II will be updated before producing AIT data storage devices. Updated data will be passed to (organization) no later than (date/time).

b. Tasks to Subordinate Units/Elements: This paragraph clarifies and states tasks in sufficient detail to ensure action by subordinates or platoons/sections within a company. It addresses the following as relates to the actual move:

(1) Company, platoon, or section tasks.
(2) Maintenance.
(3) Supply.
(4) Food service.
(5) Rear detachment.
(6) NBC.
(7) Loading teams.

(8) Training.
(9) Rail guards, convoy guides, supercargoes, etc.
(10) Reports.

Examples of tasks listed in this section are as follows:

(1) Specific for company, battery, or detachment: Advance party vehicles will convoy to consolidation point at___(date/time).
(2) Maintenance (date/time to stop repairs and load maintenance equipment).
(3) Supply (date/time to complete issue and start loading).
(4) Food service (date/time to close down food service operation, clean up, and load food service section equipment).
(5) NBC (chemical defensive equipment [CDE] guidance--disposition of CDE, load on vehicle or issue to individual).
(6) Load teams (date/time to complete documentation, produce and attach AIT data storage devices, and loading of advance party, main body, commercial loads, etc.).

c. Coordinating Instructions: These list required coordination for planning and executing phases with the following:

(1) Higher headquarters.
(2) STARC/MUSARC/next higher headquarters.
(3) Mobilization and training equipment site (MATES) and equipment concentration site (ECS) (RC Only).
(4) Transportation terminal nodes (bus terminal, railhead, APOE, SPOE, and for highway movements).
(5) Local agencies and businesses.
(6) All elements internal to unit.

Example of coordination covered in this paragraph is as follows:

UMO will coordinate TC-AIMS II data transfer, RFID tag requirements, and Smart Card procedures with (organization) prior to (date/time/N-hour).

4. SERVICE SUPPORT: This paragraph lists the support needed for the unit move. They must be listed either in the basic plan or as annexes to the plan. As a guide, if the information for a subparagraph will fit on one page, include it in the body of the plan. This makes your plan easier to read and easier to use. If the information for a subparagraph is longer than one page, consider placing it in an annex _____.

The following should be addressed:

a. Supply:

(1) Class I (See Annex__). This annex/subparagraph should address subsistence for:

(a) Advance party.
(b) Main body.
(c) MATES/ECS recovery or load teams (if applicable).

(2) Class II (See Annex__). This annex/subparagraph should cover any pertinent information on OCIE.

An example of an item in this subparagraph is: Due to movement being administrative, all weapons, NBC equipment, and other non-combat OCIE will be packed, boxed, and moved administratively. TC-AIMS II must reflect accurate packing data and applicable AIT data storage devices must be produced for automatic accountability and ITV reporting.

(3) Class III (See Annex__). This annex/subparagraph should address:
(a) Topping off vehicles.
(b) Trail party requirements.
(c) En route refueling.
(d) Packaged requirements.
(e) Bulk requirements.
(f) Motor fuels.
(g) Aviation fuels.

(4) Class IV (See Annex__). This annex/subparagraph should include BBPCT requirements and pre-positioned requests.

Examples of items included in this subparagraph are:

(a) All barrier/construction materials will be shipped.
(b) TC-AIMS II will be used to capture the content of class IV as it is being stuffed into containers, and each container will have a RFID tag attached providing both movement and detailed inventory data.
(c) The complete BBPCT list for the unit is in Annex __.

(5) Class V (See Annex__). This annex/subparagraph includes guidance on the transportation of ABL.
(6) Class VI (See Annex__). This annex/subparagraph should be included if directed by OPLAN/OPORD).
(7) Class VII (See Annex__). This annex/subparagraph should cover the following:
(a) Retrieval and commercial shipment procedures in MATES/ECS (RC only).

(b) Procedures for loading and accounting for equipment moved by commercial rail or truck.

An example of an item included in this subparagraph is: major end items will be loaded IAW Annex __. All unit equipment will have accurate MSLs attached prior to movement. Selected equipment will have RFID tags and Satellite transponders.

(8) Class VIII (See Annex__). This annex/subparagraph should address the following:
(a) On-hand medical supplies transported to the MS/POE.
(b) En route medical support.

(9) Class IX (See Annex__). This annex/subparagraph should address the following:
(a) Combat ASL/PLL drawn from appropriate source and loaded on organic vehicles.
(b) Trail party requirements.

Examples of items to be included in this subparagraph are as follows:

(a) Combat PLL will be loaded on organic vehicles.
(b) All Class IX ASL/PLL will be packed, crated, and/or boxed to meet requirements of Annex__. As equipment is packed, TC-AIMS II will be updated and an applicable 2D bar code or RFID tag will be produced, verified and attached to the multipack.
(c) During the convoy, the trail party will carry, as a minimum, the items identified in Annex__.
(d) Excess PLL is not authorized and will be turned into to the SSA prior to (date/time/N-hour)

(10) Class X (See Annex__). This annex/subparagraph covers material to support nonmilitary programs such as agriculture and economic development.

b. Maintenance:
(1) Pre-movement support requirements (Annex __). This annex/subparagraph should include information on training, cleaning, and purging fuel containers and on priority of maintenance support.
(2) En route support requirements (Annex __). This annex/subparagraph contains information on coordination for en route support (supporting facilities and POC names and telephone numbers), trail party requirements, and en route PMCS, if required.

c. Transportation:
(1) Air. (Annex __, if required)

(2) Convoy. (Annex __, if required)
(3) Rail. (Annex __, if required)
(4) Commercial. (Annex __, if required)
(5) Unit movement data (UMD). (Annex __)

d. Procurement:
e. Facilities/Equipment:
f. Medical Evacuation Procedures:
g. Personnel:
h. Civil/Military Coordination, if required:
i. Other:
(1) Points of contact. (Annex __)
(2) Coordinating instructions.

5. COMMAND AND SIGNAL.

This paragraph addresses the following:

a. Chain of command, to include convoy commanders, bus troop commanders, etc.
b. Personnel control (formations, briefings, safety, etc.)
c. Command locations.
d. Signal instructions (telephone, radio, etc.)
(1) Commercial telephone.
(2) Expedited Movement Reports procedures.
(3) Radio procedures.
(4) Current signal operating instructions (SOI).
e. N-Hour sequence (See Annex __).

The movement plan must be signed by the commander or specifically authorized representative. If the signature is not reproduced or on subsequent copies, authentication by the appropriate coordinating staff officer is required.

Annexes (Annexes are used for those items that would require too much space in the basic plan. If an annex is not necessary, or unused, type title and N/A).

ANNEX A - Procurement. **This annex includes sources for specific commodities and services.**

ANNEX B - Class I - Subsistence.

ANNEX C - Class II.

This annex covers all guidance on clothing, individual equipment, tentage, organizational tool sets, NBC, hand tools, electronics, administrative housekeeping supplies, and weapons.

ANNEX D - Class III.

This annex gives guidance for aircraft and surface vehicles, coolants, deicing and antifreeze compounds (together with components and additives of such products) and coal, hydraulic and compressed gases and lubricants.

ANNEX E - Class IV.

This includes information on material for securing vehicle secondary loads and securing major end items to transportation assets.

Appendix 1 - Blocking, bracing, packing, crating, and tie-down (BBPCT) material for secondary cargo/loads in vehicles, trailers and containers, dunnage/shoring for air deployment, and plastic pallet covers for 463L pallets.

Appendix 2 - Required documentation. This includes work order requests or memoranda for blocking, bracing, tie-down (BBT). (Requisitions are used to order packing, crating, and plastic covers).

ANNEX F - Class V.

Class V includes ammunition of all types (including NBC and special weapons), bombs, explosives, mines, fuses, detonators, pyrotechnics, propellants and other associated items. This annex should include the time and location of issue.

ANNEX G - Class VII.

Class VII includes final combinations of end products that are ready for their intended use (that is, tanks, launchers, mobile machine shops and vehicles, MHE, compressors, and construction equipment). The annex covers procedures for loading and accounting for equipment moved by commercial truck or rail. It also includes the time major end items will be loaded on commercial assets (reference - unit N-Hour sequence. The annex should also address the requirement to ensure accurate dimension and weight data is in TC-AIMS II and accurate and readable AIT data storage devices are produced and properly attached.

ANNEX H - Class VIII.

Class VIII is medical material, including medical peculiar repair parts. In addition to Class VIII, this annex covers en route medical support - first aid kits and medical support at SPOEs/APOEs.

ANNEX I - Class IX.

This annex covers guidance on repair parts (less medical peculiar repair parts and components), to include kits, assemblies and subassemblies, repairable and non-repairable, required for maintenance support of all equipment. This annex should also address accurately capturing data in TC-AIMS II, producing accurate and readable AIT data storage devices, and the attachment of those devices to kits, assemblies, and multipacks.

ANNEX J - Pre-movement Maintenance Support.

This annex covers such items as equipment status, contact teams, drivers' licenses, PMCS, sequence of events for maintenance operations, non-repairable equipment, tow bars, and topping off vehicles.

ANNEX K - Equipment Maintenance Support.

This covers maintenance during the actual move. It discusses abandoned vehicles, roadside repairs, tow bars, contact teams, repair services/parts, and maintenance vehicles.

ANNEX L - Air Transportation.

This annex always covers personnel, TAT, and baggage. It also covers equipment if the OPLAN/OPORD indicates.

Appendix 1 - Documentation. This appendix should address the procedures for using Smart Cards, and the uses of AIT data storage devices to be used on equipment and pallets moving by air.

Documentation includes:

- DD Form 2130-1, C5 Cargo Manifest
- DD Form 2130-3 ,C141 Cargo Manifest
- DD Form 2130-6 ,KC10 Cargo Manifest
- DD Form 2327, Unit Aircraft Utilization Plan
- MSLs
- RFID tags
- Bar Codes

This appendix reflects:

- Equipment/TAT/cargo to deploy by air.
- Number of personnel and cargo to deploy.
- Bulk, oversized, and outsized equipment designated to deploy by air.

Appendix 2 - Listing of Pintle-Hook Vehicles (if authorized to ship major end items by air; otherwise, personnel pallets only will be indicated).

Appendix 3 - Air Loading Procedures:

This may include:

TAB A - Planeload commander's SOP.
TAB B - Load team SOP.
TAB C - Shoring material requirements.

TAB D - 463L pallet and tie-down requirements.
TAB E - Motor and aviation fuels for movement of organic air equipment.
TAB F - Special handling cargo certification.
TAB G - AIT data storage device verification requirements. This tab should also address the requirement to check and replace RFID tag batteries if RFID tags are being used for air shipments.

ANNEX M - Convoy Requirements.

Appendix 1 - Request for Convoy Clearance, DD Form 1265 (FM 55-30).

Appendix 2 - Request for Special Hauling Permit, DD Form 1266 (for outsized/overweight equipment).

Appendix 3 - Convoy Commander's Checklist.

Appendix 4 - Drivers' Strip Maps.

Appendix 5 - Convoy Commander's Safety Briefing.

The briefing should be used to ensure:

- Drivers are licensed for vehicles being driven.
- If hazardous material is part of the load, it is identified on DD Form 1750, AUEL, and DD Form 836.

- Vehicles are properly prepared for movement and procedures to correct identified problems are covered. Considerations include:

  - Shipping configuration.
  - Fuel levels.
  - Secured secondary loads.
  - MSLs, RFID tags, and satellite transponders.
  - Shackles.
  - Purging requirements.
  - Flags.
  - Convoy signs.
  - Highway warning kits.
  - First aid kits.
  - Convoy speeds.

ANNEX N - Rail Requirements (Included only for those units where rail movement is projected).

Appendix 1 - Load Team SOP.

Appendix 2 - Documentation and Procedures for Rail Loading Equipment, which include as a minimum:

This appendix includes a rail load plan and is used to ensure training is validated and vehicles are properly prepared for movement. Guidance on vehicle preparation includes:

- Shipping configuration.
- Secondary loads secured.
- MSLs, RFID tags.
- Marking (UIC and SUN).
- Fuel levels.
- Shackles.
- Purging requirements.
- First aid kits.
- If HAZMAT is part of the load, vehicle placards.

ANNEX O - Commercial Movements Requirements. This annex should include a discussion of proper AIT procedures to ensure accurate and readable AIT data storage devices are attached before offering equipment to a commercial carrier.

Appendix 1 - Packing List (DD Form 1750). See Annex __.

Appendix 2 - FORSCOM Form 285-1-R.

Note: If distance is less than 400 miles, equipment must be non-roadable.
Distance to travel to SPOE must be more than one-day (400 miles) road march.

ANNEX P - Facilities/Equipment.

This annex covers facilities en route and equipment requirements for loading/unloading at point of origin/MS.

ANNEX Q - Points of Contact Listing.

ANNEX R - Safety.

This annex covers:

- Motor vehicle operations.
- Rail load operations.
- Air load operations.
- Accident/injury prevention.
- Ammunition and explosive/POL safety.
- Prevention of carbon monoxide poisoning.

- Senior vehicle occupant responsibilities.

ANNEX S - N-Hour Sequence.

This annex identifies and schedules movement tasks. The annex should include a specific time when:

- TC-AIMS II data is to be updated and passed to (organization)
- When AIT data storage devices (bar code, RFID tags) will be produced and verified.
- When AIT data storage devices will be inspected for proper placement and attachment to unit equipment and multipacks.

ANNEX T - Plan Coordination Documentation.

This annex includes--

- Documentation requiring action from another command or agency, intermediate headquarters, and local agencies/businesses.
- OPLAN information - location and procedures.

ANNEX U - Appointment Memorandums and Training Certificates and/or Validations.

ANNEX V – AIT support and coordination.

This annex should address unit support considerations and coordination required for employing AIT. Issues include:

- When, where, and what organization will produce Smart Cards.
- How and where will TC-AIMS II data be passed.
- Where will RFID tags be issued and is there assistance for writing and verifying the tag data.
- How will the organization writing the RFID tags ensure the data is passed to the appropriate regional ITV server.
- If the use of satellite transponders is planned, what are the procedures for installing, testing, and using this equipment.
- What are the procedures for maintaining or turning in RFID tags and satellite transponders after the movement is complete.

ANNEX W - Plan Approval.

Plans will be validated and approved by the chain of command (battalion/brigade/ division/installation). The plan(s) will be sent through the chain of command BEFORE submitting to installation UMC/USAR MSC/STARC DMC for final approval.

ANNEX X - Unit Movement Data.

It is not necessary to forward this annex for approval unless required by approving authority.

Appendix 1 - AUEL Printout.

This cross matches with DD Form 1750 and higher headquarters using shipment unit number. AUELs will be reviewed annually by the installation UMC for AC, biannually by the MSC for USAR, and biannually by the STARC DMC for ARNG.

Vehicle load cards must cross match with AUEL and packing list using SUN sequence.

Appendix 2 – Packing list (DD Form 1750).

This list for air, rail, convoy, and commercial movement must cross match with AUEL and higher headquarter SUN sequence.

Appendix 3 - UDL/Manifest Refinement

This annex should address the procedures for producing, verifying, and forwarding the UDL and PAX manifest.

Appendix 4 – AIT data storage devices.

This appendix should address which AIT data storage devices will be used, what equipment requires an AIT data storage device, how to properly verify the data accuracy on the AIT storage device, and how to properly attach the device (MSL, RFID tag) to unit equipment, multipacks, or containers.

SAMPLE THEATER ITV PLAN

The following sample theater ITV plan can be adapted for both day-to-day operations and for contingency operations. The format, with some modification, is based on CJCSM 3122.03 (1 June 96) format for the Logistics Annex to an OPLAN, including annexes and tabs. Plain text following paragraph headings is the paragraph purpose. Italicized text provides example paragraph content.

HEADQUARTERS, US XXX COMMAND
APO YY 01234
28 February 2000

APPENDIX X TO ANNEX D TO USCINCXXX OPLAN 4111-00 (U)
Theater ITV Plan (U)

( ) REFERENCES: Cite documents containing information necessary for background, completeness, and understanding of this appendix.

1. ( ) Concept of ITV Plan. Outline the concept of ITV/AIT operations supporting the OPLAN.

a. ( ) ITV Policies. Identify currently applicable key ITV policies or reference documents. Do not refer to a publication unless all recipients of the plan have the cited reference readily available. *DoD AIT Implementation Plan, December 1999, USCINCXXX Directive 66-2.*

b. ( ) Concept of ITV/AIT employment.
Establish the general concept for collecting and reporting ITV movement and reception data for all major forces and accompanying supplies identified in the OPLAN. Indicate availability of organic ITV capability and the need for augmentation. Include special guidance for ITV support of transportation operations that would not normally be encountered, such as logistics over-the-shore (LOTS) operations and the use of maritime prepositioning ships (MPS).
In accordance with the commanders intent, all movements (Unit and sustainment) arriving and departing critical logistics and force projection nodes will be reported to GTN within the time standards established IAW DoD AIT time reporting standards listed in paragraph 1.c. below. Where capable, AIS to AIS EDI will be used to report all arrivals and departures. In nodes where AIS to AIS EDI can not meet the established time standards, AIT will be employed to meet the requirement. As stated in 1.c. below, specified nodes will use RFID read capability with the RFID interrogators registered to the applicable ITV server. At C + 7, ASCC must augment the AMC-LSE at SPOD Dodge to support RFID write/mounting and satellite tracking installation for selected equipment off-loaded from APS-3 stocks. ASCC will provide all required AIT hardware and satellite tracking assets to execute RSO&I ITV of APS-3. (See Appendix Y, Tab X of Annex D for details of the support requirement).

c. ( ) Movement Support.

Establish the general ITV concept supporting movement of deployment force personnel, equipment, critical supplies, improperly positioned assets, retrograde materiel, and resupply. Also include appropriate references and consider unique ITV transportation support discussed in other sections of this plan.
From reception at all strategic ports of debarkation until integration at the TAA, designated support units will provide ITV of units and sustainment cargo as they enter and depart each RSO&I node. As a minimum the SPODs, Theater Staging Bases, intermodal and distribution terminals, depots/SSAs and TAA will have RFID read capability at all entrances and exits being used to deploy forces or sustainment supplies. For sustainment supplies and unit equipment not tagged with RFID [to include all equipment departing APODs] these locations will have bar code scan capability. Data on arriving and departing unit movements and sustainment shipments will be passed to supporting AISs in time to allow that AIS to pass data to GTN within the time standards established by this plan.
Movements must be visible in GTN within the following time standards for each node: one hour from event occurrence for all unit movements and any movements involving air transportation, two hours from event occurrence for intratheater sustainment movements, and four hours from event occurrence for ocean transport sustainment shipments. For personnel movements, the APODs, Theater Staging Bases and the Tactical Assembly Area will have Smart Card read/write capability to capture and pass timely movement data of all personnel arriving or departing each location.
Management of the theater distribution system will provide in-transit visibility for retrograde shipments, NEO movements and redeployment. Cargo and equipment that is misshipped or cannot be identified will be moved to the theater distribution hub at grid AC235790.

2. ( ) Responsibilities of Supporting and Subordinate Commands. Outline the specific responsibilities of supporting and subordinate organizations for collecting and reporting ITV/AIT data on passenger and cargo movements and for providing ITV/AIT resources and services in the objective area:

a. ( ) USTRANSCOM TCCs are responsible for reporting to GTN the arrival of all equipment and personnel at the established PODs. AMC will report arrival of all aircraft at APODs and MSC will report arrival of all ships at SPODs.

(1) ( ) USTRANSCOM TCCs operating in the area process movement data within the time standards addressed in this plan.

(2) ( ) Military Traffic Command – On C - X MTMC assumes OPCON of XX PSA activity. MTMC ensures all common user seaport departure gates are surveyed and equipped with RFID read capability. For items not equipped with RFID capability MTMC will use hand held interrogators and RFDC communications to ensure data collection. Collected data will be passed to GTN within the time standards established in the order.

b. ( ) The ASCC is responsible for all inland ground transportation for sustainment, unit equipment and personnel moving into the theater of operation. The ASCC ensures that designated common user land transport vehicles are equipped with MTS satellite

communications capability. The ASCC must be prepared to support USTRANSCOM in-theater TCCs with additional ITV/AIT support to sustain execution of the theater ITV plan until such time that USTRANSCOM can provide required support. Specific ASCC tasks include:

(1) ( ) Report to GTN the ground departure of all equipment and personnel from the APODs within one hour of the event occurrence.

(2) ( ) Report the arrival and departure to GTN of all unit equipment and personnel at the TSBs within one hour of event occurrence and the arrival and departure of all sustainment cargo within four hours.

(3) ( ) Report the arrival of all unit equipment and personnel at the TAA within one hour of the event occurrence and the arrival of all sustainment cargo within four hours.

(4) ( ) Report the arrival and departure of sustainment cargo at Army depots/SSAs to GTN within four hours of event occurrence if the shipment arrived via ocean transport. If the shipment arrived via air transport the reporting time is one hour. If the shipment is an intratheater movement via land transportation the reporting time requirement is two hours.

(5) ( ) NLT C – 6 coordination with MTMC must be complete to determine the composition and capabilities of each PSA and port operator group. At C – 3 OPCON port operators and place a PSA in direct support to each MTMC common user ocean terminal. Terminals will be located at Dodge, Chevy, and Ford. Additionally, ASCC ensures each SPOD has the capability to install, maintain, and calibrate satellite communications equipment, and a capability to check and replace depleted RFID tag batteries.

(6) ( ) At C – 5 establish marshaling areas that are collocated with SPODs at Dodge, Chevy and Ford. Marshaling area control element TC-AIMS II and associated AIT must support the creation of new MSLs and RFID tags for all equipment moving into the theater via ground transportation. Any changes to equipment configuration or loads must be reported to GTN within time standards established IAW paragraph 1.c. above.

(7) ( ) At C – 3 provide an AACG at each APOD. APODs will be located at Chase, Signature and Commerce. Each AACG must have MSL and Smart Card read/write capability to collect data on the arrival and departure of all equipment and personnel received from the AMC TALCE. Each AACG TC-AIMS II system must be capable of providing ITV departure information on all equipment and passengers moving into the theater of operations via ground transportation within one hour of departure. The AACG TC-AIMS II and associated AIT must be capable of supporting deploying units needs for the creation of new MSLs and Smart Cards.

(8) ( ) At C – 5 establish theater staging bases Alpha, Omega, and Pi to support onward movement operations. Each TSB must possess RFID read capabilities at highway and rail entrance and exit gates that are being used for the RSO&I mission. Internal to the TSB the control element must possess sufficient TC-AIMS II and associated AIT to support deploying forces with the following actions:

(a) ( ) Replace missing/damaged/or changed RFID tags and MSLs.

(b) ( ) Replace low RFID tag batteries.

(c) ( ) Provide workstations where deploying unit UMOs and commanders can plug in their TC-AIMS II laptops and monitor their unit deployment flow.

(d) ( ) Provide the capability to correct or replace any satellite communications transponder problems that may arise as equipment moves from the SPODs to the TAA.

(9) ( ) At C – 3 RFID read point will be established IAW TAB A.

(10) ( ) NLT C – 3 provide RFID read capability at the rail and highway entrance gates to the TAA. Also provide MSL and Smart Card scan capabilities at equipment marshaling areas, convoy arrival areas, and passenger arrival areas to collect timely data on the arrival of all equipment and personnel in the TAA. This data must be passed to GTN within the time standards established in paragraph 1.c. of this OPLAN. The ASCC support element operating in the TAA will collect all RFID tags used in the force projection operation and return them to the DMC/SSA located at CB345678.

(11) ( ) Establish procedures for disposition/recovery of AIT devices in TAA.

(12) ( ) Establish procedures and responsibilities for checking and replacing RFID tag batteries at the APOD, SPOD, and TSB. (NOTE: The number and type of replacement batteries required should be based on the quantity of tagged deploying equipment and the type of tag being used [SealTag II or 410].)

c. ( ) Other service component commands, (i.e., AFSCC, NSCC, and MCSCC) ITV/AIT responsibilities would also be listed in this section.

3. ( ) Capabilities and Limiting Factors.
Outline limitations, such as inadequate or disapproved frequency clearances, limited satellite tracking capability, and communications or power infrastructure problems that may impact ITV/AIT.

a. ( ) Describe Conditions and Limiting Factors

(1) ( ) Describe limiting factors, such as port read capability, number of en route read sites authorized by the HN, restrictions on use of AIT devices at certain locations or restrictions on satellite communications.
The HN has approved all requested RFID and RFDC operations for initial operations. It is anticipated that by D+XX operations will move across the border into Spamland. Negotiations are currently underway to gain RFID and RFDC frequency approval however approval is not assured. After D+XX be prepared to provide ITV data using MTS and bar code scan read at strategic rest halts in Spamland.

(2) ( ) Describe or identify limited AIT/AIS infrastructure that necessitates the need for deployable kit capability to augment strategic nodes.
TSB Pi has limited communications infrastructure available. Robust satellite communications capability is required at Pi to meet ITV reporting requirements.

(3) ( ) Identify special ITV or AIT requirements that may be critical to the support of the concept of operations. (For example satellite tracking capability in each command vehicle of convoys over 25 vehicles.)

(4) ( ) Requirements for RFID and RFDC frequency approval.
The use of RFID and RFDC for data collection and transfer anywhere in the theater of operations requires host nation approval before beginning operations. All frequency use requests will be processed through designated staff proponents to the J – 6. For guidance on submitting a frequency request, see Annex K, Appendix B, Tab C.

b. ( ) Describe weather conditions that could limit the execution of the planned operation.

4. ( ) <u>En Route Support Requirements</u>. Refer to Tab A.

Tabs:
A — En Route Read Locations

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TAB A TO APPENDIX X TO ANNEX D TO USCINCXX OPLAN 4111-00 (U) RFID Read Locations (U)

1. ( ) RFID read sites will be established by the ASCC at the following locations to support Joint movements.

AB124489	Rail yard
AF123456	Rail RFID read point
BB133498	Rail RFID read point
AB345678	Highway interchange
AF345692	Highway interchange
BC342453	Entrance to TAA

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GLOSSARY

ACRONYMS AND ABBREVIATIONS

2D	Two Dimensional
AA	Assembly Area
AACG	Arrival Airfield Control Group
A/DACG	Arrival/Departure Airfield Control Group
AAN	Army After Next
AC	Active Component
AIT	Automatic Identification Technology
AIS	Automated Information System
AMC	Air Mobility Command (A transportation component command of United States Transportation Command); Army Material Command
AMC-LSE	Army Materiel Command – Logistics Support Element
AMS	Automated Manifest System
AOR	Area of Responsibility
APA	Army Pre-positioned Afloat
APOD	Aerial Port of Debarkation
APOE	Aerial Port of Embarkation
APS	Army Pre-positioned Stocks (Afloat Prepositioned Ship)
ARFOR	Army Forces
ARNG	Army National Guard
ASCC	Army Service Component Commander
ASG	Area Support Group
ASP	Ammunition Supply Point
ATAV	Army Total Asset Visibility
ATCMD	Advance Transportation Control & Movement Document
ATMCT	Air Terminal Movement Control Team
AUEL	Automated Unit Equipment List
AWR	Army War Reserve
AWRDS	Army War Reserve Deployment System
BBPCT	Blocking, Bracing, Packing, Crating, and Tie-down
BMCT	Branch Movement Control Team
BSB	Base Support Battalion
C2	Command and Control
C3A	Command, Control, Communications, and Automation

CAC	Common Access Card (Also know as a Smart Card)
CAPS II	Consolidated Aerial Port System II
CASCOM	Combined Arms Support Command
CATT	Computer Automated Transportation Tool
CCP	Consolidation and Containerization Point
CFA	Call Forward Area
CHE	Container Handling Equipment
CINC	Commander in Chief
CMB	Contact Memory Button
CMOS	Cargo Movement Operations System
COMMZ	Communications Zone
COMPASS	Computerized Movements Planning Status System
CONOPS	Concept of Operations
CONUS	Continental United States
COSCOM	Corps Support Command
CRP	Central Receiving Point
CS	Combat Support
CSC	Convoy Support Center
CSS	Combat Service Support
CULT	Common User Land Transport
CZ	Combat Zone
DACG	Departure Airfield Control Group
DA DCSLOG	Department of the Army Deputy Chief of Staff – Logistics
DA DCSLOG DPO	Department of the Army Deputy Chief of Staff – Logistics – Directorate for Plans and Operations
DA DCSLOG DTETS	Department of the Army Deputy Chief of Staff – Logistics – Directorate for Transportation, Energy, and Troop Support
DA DCSLOG SM	Department of the Army Deputy Chief of Staff – Logistics – Directorate for Supply and Maintenance
DCINC	Deputy Commander in Chief
DCSLOG	Deputy Chief of Staff – Logistics
DCST	DLA Contingency Support Team
DEL	Deployment Equipment List (Also know as Unit Deployment List)
DELA	Drexler European Licensees Association
DISCOM	Division Support Command
DLA	Defense Logistics Agency

DMC	Distribution Management Center
DoD	Department of Defense
DoD AIT CONOPS	Logistics Automatic Identification Technology Concept of Operations
DSB	Deployment Support Brigade, Division Support Battalion
DTRACS	Defense Tracking, Reporting, and Control System
DTS	Defense Transportation System
DTTS	Defense Transportation Tracking System
DSS	Distribution Standard System
DSU	Direct Support Unit
DUSD(L)	Deputy Under Secretary of Defense (Logistics)
DVD	Direct Vendor Delivery
E^2DSK	Early Entry Deployment Support Kit
EAC	Echelons Above Corps
ECS	Equipment Concentration Site
EDI	Electronic Data Interchange
EEM	Early Entry Module
FSC	Field Support Command (was Army War Reserve Support Command [AWRSPTCMD])
FM	Field Manual
FORSCOM	Forces Command
GATES	Global Air Transportation Execution System
GCCS	Global Command and Control System
GCCS-A	Global Command and Control System – Army
GCSS	Global Combat Support System
GCSS-A	Global Combat Support System –Army
GOPAX	Groups Operational Passenger System
GPS	Global Positioning System
GSOP	Garrison Standard Operating Procedure
GTN	Global Transportation Network
HAZMAT	Hazardous Materiel
HERO	Hazards of Electromagnetic Radiation to Ordnance
HHI	Hand Held Interrogator
HHT	Hand Held Terminal (for Automatic Identification Technology purposes, HHT and HHI are synonymous)
HMCT	Highway Movement Control Team
HN	Host Nation

IBS	Integrated Booking System
ICC	Integrated Circuit Chip
ICODES	Integrated Computerized Deployment System
IFV	Infantry Fighting Vehicle
ISSA	Inter/Intra-Service Support Agreement
ITO	Installation Transportation Office
ITV	In-Transit Visibility
JFC	Joint Forces Commander
JFRG	Joint Force Requirements Generator
JLOTS	Joint Logistics Over the Shore
JMC	Joint Movement Center
JOPES	Joint Operations Planning and Execution System
JP	Joint Publication
JRSO&I	Joint Reception, Staging, Onward Movement & Integration
JTAV	Joint Total Asset Visibility
JTB	Joint Transportation Board
JTF	Joint Task Force
LAN	Local Area Network
LFSP	Landing Force Support Party (USMC)
LIA	Logistics Integration Agency
LIC	Low Intensity Conflict
LIN	Line Identification Number
LMSR	Large Medium Speed Roll-on/Roll-off (Ship)
LOC	Lines of Communication
LO/LO	Lift-on/Lift-off
LOTS	Logistics Over the Shore
LPT	Logistics Preparation of the Theater
LSE	Logistics Support Element
MA	Marshaling Area
MACOM	Major Army Command, or Major Area Command
MCA	Movement Control Agency
MCB	Movement Control Battalion
MCT	Movement Control Team
MDRD	Mobilization, Deployment, Redeployment, and Demobilization
METT-T	Mission, Enemy, Terrain, Troops – Time Available

METT-TC	Mission, Enemy, Terrain, Troops – Time Available, and Civilian Considerations
MHE	Material Handling Equipment
MILVAN	Military Van
MMC	Materiel Management Center
MOBSTA	Mobilization Station
MOOTW	Military Operation Other Than War
MOU	Memorandum of Understanding
MRC	Major Regional Contingency
MRO	Materiel Release Order
MSC	Military Sealift Command
MSL	Military Shipping Label
MTMC	Military Traffic Management Command
MTS	Movement Tracking System
NAVCHAPRG	Navy Cargo Handling and Port Group
NEO	Noncombatant Evacuation Operations
NGB	National Guard Bureau
NSN	National Stock Number
OCONUS	Outside the Continental United States
OEL	Organizational Equipment List (also known as Automated Unit Equipment List - AUEL)
OMC	Optical Memory Card
OPCON	Operational Control
OPP	Offload Preparation Party
OPSEC	Operations Security
PAX	Passenger
PCMCIA	Personal Computer Memory Card International Association
PDF-417	Portable Data File – 417 (2D bar code symbology standard)
PEO-STAMIS	Program Executive Office Standard Army Management Information Systems
PIN	Personal Identification Number
PM-AIT	Product Manager – Automatic Identification Technology
POD	Port of Debarkation
POE	Port of Embarkation
POW	Prisoner of War
PO TACMIS	Project Office – Tactical Management Information Systems

PPP	Power Projection Platform
PSA	Port Support Activity
PSP	Power Support Platform
RAA	Redeployment Assembly Area
RGATES	Remote Global Air Transportation Execution System
RC	Reserve Component
RF	Radio Frequency
RFDC	Radio Frequency Data Communications
RFID	Radio Frequency Identification
RMMT	Rail Movement Management Team
RO/RO	Roll-on/Roll-off
RSO&I	Reception, Staging, Onward Movement & Integration
SAAS-MOD	Standard Army Ammunition System – Modernized
SARSS	Standard Army Retail Supply System
SI	Supporting Installation
SIDPERS	Standard Installation Division Personnel System
SOP	Standard Operating Procedure
SPBS-R	Standard Property Book System – Redesigned
SPOD	Seaport of Debarkation
SPOE	Seaport of Embarkation
SRP	Soldier Readiness Processing
SSA	Supply Support Activity
STACCS	Standard Theater Army Command & Control System (AREUR)
STAMIS	Standard Army Management Information System
STARC	State Area Coordinators
TAA	Tactical Assembly Area
TACSOP	Tactical Standard Operating Procedure
TALCE	Tanker Airlift Control Element
TAV	Total Asset Visibility
TC-ACCIS	Transportation Coordinator-Automated Command and Control System
TC-AIMS II	Transportation Coordinators' Automated Information for Movement System II
TCC	Transportation Component Command
TCMD	Transportation Control and Movement Document
TCN	Transportation Control Number
TFOM	Theater Force Opening Module

TFOP	Theater Force Opening Package
TPFDD	Time Phased Force and Deployment Data
TPFDL	Time Phased Force and Deployment List
TRAMS	Transportation Automated Measurement System (also called the SHED concept)
TSACS	Terminal Server Access Controller System
TSB	Theater Staging Base
TSC	Theater Support Command
TTP	Trailer Transfer Point
UDL	Unit Deployment List (Also known as Deployment Equipment List)
ULLS	Unit Level Logistics System
ULN	Unit Line Number
UMC	Unit Movement Coordinator
UMD	Unit Movement Data
UMO	Unit Movement Officers
UPC	Universal Product Code
USAMC	United States Army Materiel Command
USAMMA	United States Medical Materiel Agency
USAR	United States Army Reserve
USCASCOM	United States Army Combined Arms Support Command
USCENTCOM	United States Central Command
USEUCOM	United States European Command
USMC	United States Marine Corps
USTRANSCOM	United States Transportation Command
WEAR	Wartime Executive Agencies Responsibility
WPS	Worldwide Port System

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REFERENCES

AMC AIT Integration Plan, *date TBD*

AR 5-9, Area Support Responsibilities, *16 October 1998,* http://books.usapa.belvoir.army.mil:80/cgi-bin/bookmgr/BOOKS/R5_9/

AR 710-2, *Inventory Management Supply Policy Below the Wholesale Level*, 31 October 1997, http://www.usapa.army.mil/gils/epubs8.html

AR 735-5, *Policies and Procedures for Property Accountability*, 31 January 1998, http://www.usapa.army.mil/gils/epubs9.html

DOD Directive 4500-9-R-1, Defense Transportation Regulation, *Part III* Mobility, *11 April 1997,* http://214.3.17.158/J4/j4lt/dtr.html

DOD Logistics AIT Concept of Operations, *November 1997,* http://lia.army.mil/ait/index.htm

DOD Implementation Plan for Logistics AIT, *March 2000,* http://lia.army.mil/ait/index.htm

EUSA Publication, Radio Frequency, Automatic Identification Technology, and Intransit Visibility Guide, *September 1998*

Evaluation of the Logistics Automatic Identification Technology (AIT) Prototype, *31 March 1999, for DoD Logistics AIT Office (SRA International),* http://lia.army.mil/ait/index.htm

FM 63-4, Combat Service Support Operations-Theater Army Area Command, *24 September 1984,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/63-4/toc.htm

FM 100-9, Reconstitution, *13 January 1992,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-9/fm1009.htm

FM 100-10-1, Theater Distribution, *1 October 1999,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-10-1/toc.htm

FM 100-17, Mobilization, Deployment, Redeployment, Demobilization, *28 October 1992,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-17/toc.htm

FM 100-17-1, Army Pre-Positioned Afloat Operations, *27 July 1996,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-17-1/toc.htm

FM 100-17-2, Army Pre-Positioned Land, *16 February 1999,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-17-2/toc.htm

FM 100-17-3, Reception, Staging, Onward Movement, and Integration*, 17 March 1999,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-17-3/toc.htm

FM 100-17-4, Deployment *(Draft),*

FM 100-17-5, Redeployment*, 29 September 1999,* http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-17-5/toc.htm

FORSCOM/ARNG Regulation 55-1, Unit Movement Planning*, 1 March 2000,* http://www.forscom.army.mil/pubs/Pubs/2530/SEC1-7_2.HTM

FORSCOM/ARNG Regulation 55-2, Unit Movement Data Reporting and Systems Administration*, 31 October 1997,* http://www.forscom.army.mil/pubs/Pubs/2530/SEC1-7_2.HTM

Joint Publication 1, Doctrine for Personnel Support to Joint Operations*, 19 November 1998,* http://www.dtic.mil/doctrine/jel/personnel.htm

Joint Publication 3-0, Doctrine for Joint Operations*, 1 February 1995,* http://www.dtic.mil/doctrine/jel/operations.htm

Joint Publication 3-35, Joint Deployment and Redeployment Operations*, 7 September 1999,* http://www.dtic.mil/doctrine/jel/operations.htm

Joint Publication 4-05, Joint Doctrine for Mobilization Planning*, 22 June 1995,* http://www.dtic.mil/doctrine/jel/logistics.htm

Joint Publication 4-05.1, Joint Tactics, Techniques, and Procedures for Manpower Mobilization and Demobilization Operations: Reserve (RC) Callup*, 11 November 1998,* http://www.dtic.mil/doctrine/jel/logistics.htm

Joint Total Asset Visibility Strategic Plan*, January 1999,* http://www.acq.osd.mil/log/jtav/strat-plan/index.htm

MTMC AIT Integration Plan*, October 1999*

Product Manger (PM) AIT Compact Disc, Radio Frequency Identification Multimedia Training Package*, June 1999*

RF AIT Supervisor's Handbook*, 31 March 1998*

TAV Intransit Processing Station (TIPS) Users Manual *(DRAFT), January 1999*

Unisys Corporation Deliverable, Fly-Away Kit Design Document*, December 1999*

USAREUR Publication, Automatic Identification Technology Guide and Responsibilities*, 1997*

US Army AIT Transition Plan*, 15 April 1999*

US Army Transportation School, Division Transportation Officer's Guide*, 7 June 2000,* http://www.transchool.eustis.army.mil/DTO/

USTRANSCOM AIT Integration Plan*, June 1999*